

Improving Learning Outcomes of Simple Arithmetic Using Smart Ladder Media for Second Grade Elementary School


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Abstract

This study aims to determine the increase in learning outcomes of simple arithmetic operations using smart ladder media. This study was conducted towards 2nd-grade elementary school students. The data collection was from findings of scientific articles obtained from journals with qualitative methods. From the data obtained that using smart ladder media can significantly improve learning outcomes of simple arithmetic operations. Student learning outcomes increase, namely from the first cycle, the completeness value of 51 % and 78% completeness value in the cycle. It can be concluded that the use of learning ladder media can improve mathematical arithmetic operations.

Keywords: Improved Learning Outcomes; Smart Ladder Media; Instructional Media

1. Introduction

The Covid-19 pandemic that has hit many countries, including Indonesia, has changed the way people behave in their daily activities. The education department was no exception, starting in March last year until the new school year changed, the next department carried out teaching activities at home. With the change in the learning process that was initially carried out at school and then carried out at home, it will make students start to feel bored and lazy to study. According to Marlina, 2019 "Students with problems learning mathematics feel hopeless because it will be difficult for them to learn if given new lessons that will have a relationship with previous lessons. On the other hand, many problems occur in elementary school children, one of which is in mathematical arithmetic operations. Which mathematical arithmetic operations are the main thing that must be owned by elementary school students. According to Marlina, 2019 "Where numeracy lessons are the main lessons that can help in solving daily cases and are also needed at higher education levels". By changing the learning process which was initially carried out at school and then carried out at home it will make students start to feel bored and lazy to study. On the other hand, many problems occur in elementary school children, one of which is in mathematical arithmetic operations. Which mathematical arithmetic operations are the main thing that must be owned by elementary school students. The problem faced by elementary school students, especially in grade 2, is in understanding arithmetic operations in terms of facts, this is shown when solving story form problems with examples of real objects. Sometimes some students do not understand numbers thoroughly, so students find

it difficult to distinguish numbers from letters. In solving these problems we use smart ladder media.

A smart ladder is a modified media to make it easier for students to follow the lesson. With the media, the teacher in delivering the material is also more efficient and students are not easily bored or sleepy because in the learning process students are invited to learn while playing. In addition, teaching using smart ladder media will make students able to generate new desires and requests in learning mathematical arithmetic operations. This smart ladder media can be designed properly and will greatly assist students in achieving learning objectives. To achieve appropriate learning objectives, teachers need to create interesting learning media for students.

In this study, we use smart stair media. Smart stairs are media made of materials that are easily found and easy to make. Smart stairs are also beneficial for low classes, where they are still playing. Here the role of the teacher is very important to build the spirit of students. With the teacher using the media, it provides guidance for teachers to achieve learning goals so that they can explain the learning material systematically and assist in the presentation of interesting materials to improve the quality of learning for students and, with teacher learning media can measure the level of success in teaching. But in student mathematics learning becomes tired and bored in learning mathematics, therefore the teacher is required to have creativity in mathematics learning. The existence of media will help the teacher to convey his ideas or ideas in mathematics learning so that students are more active and not easy to feel bored. The media can increase success in the teaching and learning process.

In this era of globalization with technological advances, educators are actually helped in finding suitable learning media innovative and interesting so that students become more motivated in learning. In addition to technological advances that require teachers to be able to create media that can support a learning delivered. Students will easily understand if they feel comfortable with the subjects delivered by the teacher. With advances in technology, teachers also feel very helpful because teachers can accept ideas from various sources to create media that are suitable for the conditions of their students. With that researchers to improve learning outcomes significantly using smart ladder media. The success of the teaching and learning process does not only come from the media, but teachers and students must contribute to each other to achieve learning objectives. Good learning is where the teacher has a lesson plan, the media used and a conducive class. Conducive classes are also related to calm students. But in grade 2 SD, students still think about playing. So as a teacher must choose a good learning model. And with the learning media, it will be more decisive for students' attention in learning, so for low grade teachers, it is attempted to use media for success in teaching and learning activities. Success in learning is strongly supported by the selection of appropriate methods and media. Mathematics learning in elementary schools will be effective and efficient if students are involved in thinking actively and creatively through various activities that lead to the success of the learning process.

2. Metode

From the problems above, researchers conducted research on improving learning outcomes of simple arithmetic by using data analysis collection from various sources. Because using this data collection technique is considered the most effective technique in our research to improve arithmetic learning outcomes in grade 2 elementary school. In addition, with this

technique, researchers can find out the difficulties faced by 2nd grade elementary school students.

3. Discussion

Learning is an interaction that occurs in the world of education between a teacher and a student. In education there is learning that aims to educate every student, but in learning there are of course problems. In the learning process there are students who feel bored with the learning process carried out by the teacher, therefore a teacher must be able to find solutions through applying learning models. By overcoming students' boredom towards learning, a game-based learning model can be applied. Games based learning is a type of serious game designed for a specific purpose in learning. According to Prasetya, et al (2013) Game based learning is a form of learner-centred learning that uses electronic or digital games for learning purposes. Learning uses games assisted by media to support the student learning process. Game Based Learning provides opportunities for having discussing between students and the teacher through questions. Learning is an interaction that occurs in the world of education between a teacher and a student. In education, there is learning that aims to educate every student, but in the learning of course there are problems. In the learning process, some students feel bored with the learning process carried out by the teacher, therefore a teacher must be able to find solutions through the application of learning models. By overcoming students' boredom towards learning, game-based learning models can be applied. Game-based learning is a type of serious game designed for a specific purpose in learning. According to Prasetya, et al (2013) Game-based learning is a form of learner-centered learning that uses electronic or digital games for learning purposes. Learning uses media-assisted games to support the student learning process. Game-Based Learning provides an opportunity to discuss between students and teachers through questions. That way, game-based learning can help second-grade elementary school students to more easily understand the material about arithmetic operations. Game-based learning processes can use digital games as a medium to deliver lessons, improve understanding and knowledge skills, assess or evaluate material in a discipline. Therefore, game-based learning can be an interesting learning solution. By learning using game-based learning, it is hoped that it can help teachers deliver material with the help of smart ladder media, because students will be more enthusiastic about learning while playing, and by using learning while playing methods besides that students can learn well, teachers can also evaluate directly. Evaluation is carried out to determine the abilities possessed by students, to carry out these evaluations which are used to determine these abilities can be assisted by game-based learning models.

Therefore, game-based learning can help second-grade elementary school students to more easily understand the material about arithmetic operations. Game-based learning processes can use digital games as a medium to deliver a lesson, improve understanding and knowledge skills, assess or evaluate material in a discipline. Not only by using digital games as media but traditional games can also be a medium of learning. Therefore, game-based learning can be an interesting learning solution.

The learning model by utilizing this game is used to make classroom learning dynamic and fun, on the other hand by utilizing this game can foster high learning enthusiasm in students. With the application of game-based learning models, it is hoped that learning will no longer be centered on educators but can be student-centered. The learning model that utilizes games is hoped that by implementing game-based learning, students can be

interested and motivated to learn mathematics, and game-based learning can challenge students to try and be able to make students happy about mathematics. With this, the teacher must be able to prepare learning media that can help students in the spirit of learning. Of course, game-based learning has its advantages and disadvantages which can increase students' enthusiasm for learning.

That way, game-based learning can help second grade elementary school students to more easily understand the material about arithmetic operations. Game-based learning processes can use digital games as a medium to deliver a lesson, improve understanding and knowledge skills, assess or evaluate the material of a discipline. Therefore, game-based learning can be an interesting learning solution. By learning using game based learning, it is hoped that it will help teachers in delivering material with the help of smart ladder media, because students will be more enthusiastic about learning while playing, and by using learning while playing methods besides students can learn well, teachers can also evaluate directly.

Therefore, games based learning can help second grade elementary school students to make it easier to understand material about arithmetic operations. Game-based learning processes can use digital games as a medium to convey a lesson, improve understanding and knowledge skills, assess or evaluate the material of a scientific discipline. Therefore, game based learning can be an attractive solution for learning. The learning model by utilizing this game is used for the purpose of making classroom learning dynamic and fun, on the other hand, utilizing this game can foster a high enthusiasm for learning in students. With the application of the game-based learning model, it is hoped that learning is no longer centred on educators but can be student-centred. With this, the teacher must be able to prepare learning media that can help students in the spirit of learning.

Learning media is a tool that offer / describe learning opinions (Ardisal & Damri, 2013). In line with the expert opinion above (Arsyad, 2014) revealed that "Media" Learning is everything that is used in lessons in the learning process As a result, it can attract children's interest in learning. so it can be concluded that learning media is a tool used to communicate with students and by using a tool can make students active in the learning process. In using a learning model, of course there are advantages and disadvantages, below are the advantages and disadvantages of learning media, including:

The advantages of media according to Hamalik (1994: 63-64)

- 1) has a concrete nature, with the use of smart ladder media, it will make it easier to understand and understand the subject matter.
- 2) overcoming space and time, by using the media, students can practice directly in learning, so as to facilitate students in learning and can save the teacher's time in explaining.
- 3) Explaining a problem, by using media students can play a direct role, so that teachers can directly evaluate when learning takes place.
- 4) cheap and easy, by using this smart ladder media, teachers can take advantage of used tools and materials such as cardboard and paper and these materials can be used to make media.
- 5) learning activities while playing are more effective, because learning activities by playing will last a long time in the student's memory.

Lack of media according to Wati (2016: 45)

- 1) The media is sometimes less practical and
- 2) Takes a long time to make the class atmosphere is not conducive
- 3) Because learning by playing tends to cause chaos in the classroom requires good and practical materials for making and designing media, so that media can last a long time, so the manufacturing process is quite complicated
- 4) By learning to use media the teacher will work even harder because the teacher must prepare tools, steps first and tested so that teaching and learning activities will take place well.

According to Miarso (Indriana: 2011:14) that the media is everything that can be used to channel messages that can stimulate the thoughts, feelings, attention, and willingness of students to learn. From the opinions of 2 experts, it can be concluded that the media is a tool used by teachers in delivering learning materials in teaching and learning activities. In this study, we use the smart ladder learning media, because the use of media has the benefits of using media to make it easier for teachers to explain material that is difficult for students to understand. Mathematics as one of the subjects in elementary school that is not liked by many students, because many students think that mathematics is a difficult subject. By using this smart ladder media the teacher hopes to be an alternative to improve students' ability in learning mathematics, especially arithmetic material for second grade students, because smart ladder media is a three-dimensional media.

The roles of the media include (1) the use of snakes and ladders game media in the learning process proven to be influential and effective in improving students' mathematics learning outcomes, (2) the application of snakes and ladders game media has proven to be effective and has a positive impact on the activity of students in participating in mathematics learning. (3) the use of snakes and ladders game media is proven to be able to develop and improve students' mathematical abilities in participating in the mathematics learning process in the classroom, and (4) the application of snakes and ladders game media has been proven to have an effect and can increase students' motivation in participating in the mathematics learning process in the classroom. class. This learning media with the name smart ladder is inspired by the snake and ladder game that is well known to the public.

This snake and ladder game was modified into a smart ladder game to help in the student's learning process. Smart ladder media is also able to increase elementary school students' learning interest in Mathematics. There are several media functions according to Hamalik as quoted by Rusman in his book entitled "Information and Communication Technology-Based Learning Developing Teacher Professionalism" the functions of learning media, namely:

1. To create an effective learning situation
2. The use of media is an integral part of the learning system
3. Learning media is important in order to achieve learning objectives
4. The use of media in learning is to accelerate the learning process
5. Helping students in understanding the material presented by the teacher in class
6. Enhance the quality of education.

Regarding the function of the media itself, at first we only knew media as a tool in teaching and learning activities, namely those that provide visual experiences for children in order to encourage learning motivation, clarify and simplify complex and abstract concepts

to become simpler, concrete, easy to understand. Today, with the development of technology and knowledge, teaching media functions as follows:

1. Help facilitate learning for students and also facilitate teaching for teachers,
2. Provide a more real experience (abstract becomes concrete)
3. Attract students' attention to a greater extent (the course is not boring) All of the student's senses can be activated,
4. More attention and interest of students in learning
5. Can evoke the world of theory with reality.
6. Suppose the teacher can explain the process of the occurrence of a rare solar eclipse through video recordings or to convey lesson material about the human circulatory system can be presented through a film.

So it can be concluded that the function of this smart ladder media is that smart ladder learning media can be a solution to improve students' conceptual understanding skills. By using this smart ladder media, significant results are obtained.

According to Purwanto (in Sukmadinata in Sukriswati, 2016) learning outcomes are the achievement of educational goals for students who follow the teaching and learning process or can be interpreted as changes that occur in humans who change in attitudes and behavior. Meanwhile, according to Nana Sudjana (in Sukriswati, 2016) learning outcomes are abilities that are possessed after he undergoes his learning experience (teaching and learning process). From the opinion above, it can be said that learning outcomes are teaching and learning outcomes that can develop abilities, be it attitudes or values.

Learning outcomes are influenced by experience and the surrounding environment with the aim of learning and students' motivation to influence interactions that are just known to students (Sardiman, 2006:38). Learning outcomes are a learning process followed by follow-up and improvement. The result of this activity is a change in student behavior. According to Benjamin Bloom (1959) argues that student behavior can be seen in terms of cognitive aspects, psychomotor aspects, and affective aspects. And according to Romizowski (1982) argues that the ability in learning outcomes can be seen from:

1. Cognitive skills related to logical thinking
2. Psychomotor skills are related to physical and motor skills
3. Reactive skills related to oneself (feelings, attitudes)
4. Interactive skills related to social and leadership.

So it can be concluded that learning outcomes are teaching and learning processes in which there is experience and social interaction. To achieve good learning outcomes in the teaching and learning process using appropriate learning media for students. so that it can lead to high interest in learning and significant results. media used smart ladder.

Teachers must create a pleasant learning atmosphere in which there is something meaningful. So it is expected that teachers in teaching and learning activities use a media.

According to Gagne (Indriana: 2011:14) that the media is a manifestation of the existence of various types of components in the student environment that can stimulate students to learn. According to Miarso (Indriana: 2011:14) that the media is everything that can be used to channel messages that can stimulate the thoughts, feelings, attention, and willingness of students to learn. From the opinions of 2 experts, it can be concluded that the

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The function of this smart ladder media is that smart ladder learning media can be a solution to improve students' conceptual understanding skills. By using this smart ladder media, significant results are obtained.

This smart ladder media has been widely studied by previous researchers, including (Putra, R. E., & Clara, 2020); (Maulidah, Nurul Khikmah, 2019); (Yuli, 2018); (Yola Ananda & Damri, 2021), this media is very effective and suitable in the teaching and learning process. So from some of the studies above that using smart ladder media can improve learning outcomes accordingly. In the study (Yola Ananda & Damri, 2021) it is known from the results of observations carried out for sixteen meetings with each in 3 activities, namely activity A1 was carried out 4 times, activity B was carried out in 7 meetings and activity A2 was carried out for five times. meeting. In carrying out the research, the researcher gave 18 questions that assessed the answers that were answered correctly by the child. The results obtained from the exercises that children do when using smart ladder media are proven to have a positive and effective influence. Meanwhile (Putra, R. E., & Clara, 2020) that using the media ladder unit weight the learning outcomes of students increase, namely from the first cycle, namely the completeness value of 51% and the completeness value of 78% in the cycle. So it can be concluded that the use of learning ladder media can improve mathematical arithmetic operations which have an impact on increasing the value of each student. And according to maulidah nurul wisdom 2019 The results showed the average score obtained at the pre-test stage was 58.6 while the average score at the post-test stage increased to 80 after being given treatment.

4. Conclusion

Media is a tool used in the teaching and learning process to achieve learning objectives in accordance with the learning implementation plan. In class II there are still students who do not understand simple arithmetic operations, so the teacher must provide interesting learning media to use. In learning simple mathematical arithmetic operations using smart ladder media can significantly improve learning outcomes and be fun for students. from several studies it can be concluded that smart ladder media can improve learning outcomes and facilitate the teaching and learning process.

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