THE BOARD GAMES MAZE ON PLANT TISSUE MATERIAL: A MEDIA AFFECTS LEARNING OUTCOMES

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ABSTRACT

Media is an important part that can engage students to learn. This research aims to determine the influence of Maze Board Games Learning Media on Learning Outcomes at SMA Negeri 11 Maros. The research method used was pre-experimental, with a One-Group Pretest-Posttest Design. Purposive sampling was employed in this study, with 36 students. The instruments used are learning outcomes tests, observation sheets and documentation. The data analysis techniques used is descriptive statistical analysis and inferential, the learning outcome score before treatment is 29.34 in the low category, while after treatment had an average of 78.11 in the high category. Inferential statistical analysis obtained N-Gain Score is 0,68, so H0 is rejected and H1 is accepted. These results suggest an influence of Maze Board Games Learning Media on Learning Outcomes at SMA Negeri 11 Maros.

Keywords: Learning Outcomes, Media, Maze Board Games

1). INTRODUCTION

Education specifically means changing the attitudes and behaviors of a person or group of people to mature humans through education, teaching, and training efforts. Education can be carried out through gradual and organized educational pathways and stages, both formal, non-formal, and informal, starting from basic education to tertiary education (Sola, 2018). Existing levels of education can lead to a more focused education. A focused education process will lead this nation toward a better civilization (Darwisyah, Rosadi, and Ali, 2021).

Education aims to help humans live better lives (Sastrawan and Primayana, 2020). If we look at it from the perspective of Islamic education, Islamic education aims to create "insan kamil," with the insan kamil lifestyle meaning humans are whole spiritually and physically and develop naturally and normally due to their devotion to God and their efforts (Yuristia, 2018). Allah SWT created humans

based on His nature. But Allah SWT's nature for humans is translated into the potential to be educated. With education and teaching, this potential can be developed (Jumadil and Arif, 2022). So how important is education for us, who are created by nature as intelligent creatures? Education at school is to learn about something that one cannot do to become able, from not knowing to knowing. To find out the success of students, educators carry out assessments by giving learning outcomes tests.

Success in learning can be measured through assessments in the form of tests or observations of attitudes and behaviors, which include assessments of the cognitive, affective, and psychomotor domains. So what is meant by maximum learning outcomes is not only measured by intelligence or prime grades, but the ability in the affective and psychomotor aspects of students is also the result of students' learning (Sulikah, Setyawan, and Citrawati, 2020). Several factors need to be considered to optimize learning outcomes. One of these factors is the facilities used, such as learning media. When learning, using media can make it easier for an educator to deliver lessons that follow the learning objectives that have been formulated (Zaki and Yusri, 2020). Usually, the use of media in schools is not optimal (Magdelana, 2021).

Based on the results of observations by interviewing biology teachers at SMAN 11 Maros, students found it difficult to understand the material because the learning media only consisted of teaching materials in the form of books and modules, which were still limited in number. The use of teaching materials in the form of textbooks and worksheets is less attractive to students' interest (Danaswar, Kartimi, and Roviati, 2013). One of the interesting media for learning is games. Games make learning more interesting and motivate students to study harder, and most importantly, games can make students enjoy learning (Pravitasari, 2020). That's why the right strategy to use is to present game-based learning media. The presence of game elements in the learning media will certainly to make students happy and not feel bored while learning is taking place.

Seeing the various existing problems, it is necessary to innovate learning media that can trigger students to be more active and can improve learning outcomes, especially in plant tissue material. Plant tissue is an imaginative material that requires media in the form of images. The media is maze board games; these media is a visual medium that can make students interested, and also, experimental research conducted shows an increase in student learning outcomes (Agustin, 2018). Therefore, researchers used this maze media to boost student learning outcomes at SMA Negeri 11 Maros.

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2) METHODS

The type of research used is quantitative research with pre-experimental methods. The research design used was One-Group Pretest-Posttest Design. The population in this study was all students in class XI Science at SMAN 11 Maros, totaling 105. The subjects in this study were class XI Science 2, totaling 36 people. This research consisted of two treatments, namely before treatment (pretest) using maze board games as learning media, while and after treatment (posttest) using maze board games. The subjects for this research used purposive sampling, this technique is used to select samples from a population with certain considerations. The instruments used in this research were learning outcomes tests and observation sheets.

The learning outcomes test is a multiple choice test with 25 questions which is intended to measure the success of students' learning outcomes. The test is carried out twice, namely before treatment (pretest) and after treatment (posttest). Observation sheet, observations are carried out by going directly to the field by observing the implementation of learning using maze board game learning media. Next, the validity of the instrument is carried out. A valid instrument means that the instrument can be used to measure what it should measure. In this research, content validity was carried out. Content validity is carried out by providing a validation sheet which contains test validity criteria which will be validated by 2 validators, namely two Biology lecturers at the Alauddin Makassar State Islamic University.

Data were analyzed using the IBM SPSS (Statistical Product and Service Solution) statistical application version 27. Descriptive statistical analysis was used to measure the average value of student learning outcomes. At this stage of analysis the researcher will use the minimum value, maximum value, average and value variance and inferential statistical analysis is used to draw conclusions by testing temporary estimates through the N-Gain test. N-Gain test is intended.

The data normality test aims to obtain data on each variable divided normally. The criteria for testing are as follows:

a.   Sign value. ≥ 0.05 means the research data is normally distributed

b.   Sign value. < 0.05 means the research data is not normally distributed

1. Hypothesis testing based on Minimum Completeness Criteria (KKM) uses an average similarity test, namely by applying this research hypothesis test using a one sample t-test.

2. Hypothesis testing based on Gain (increase) using one sample t-test

Gain testing is used to determine whether there is an increase in biology learning outcomes that occurs in experimental class students, obtained by comparing the average pretest and posttest scores.

Hypothesis testing is created in this situation, namely:

$$H0 = \mu g < 29 \text{ against } H1 = \mu g > 29$$

3) RESULTS AND DISCUSSION

3 .1 Descriptive Analysis

a. Descriptive statistical analysis of student learning outcomes before treatment using maze board games learning media (Pretest)

Research that was conducted at SMA Negeri 11 Maros on class XI IPA 2 students as subjects by collecting data from test instruments (pretest) on student learning outcomes, So the data obtained shows that the learning outcomes of students before treatment using maze board games are as follows:

Table 1. Analysis Before Giving Treatment (Pretest) XI IPA 2

Parameter	Pretest value
Maximum Value	32
Minimum Value	16
Average	28,80
Standard Deviation	7,247

Based on the results of the descriptive statistical analysis above, it can be seen that the average pretest score obtained by class XI IPA 2 students was 28.80 with a maximum score of 32, a minimum score of 16, and a standard deviation of 7.247.

Table 2. Kriteria Penilaian Kecakapan Akademik Pretest

Completion presentation	Pretest frequency	Category
0 < TPP < 40	31	Very low

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40 < TPP < 60	3	Low
60 < TPP < 75	0	Currently
75 < TPP < 90	0	High
90 ≤ TPP < 100	0	Very high

Based on the table above, the distribution of students' pretest scores before being given treatment can be obtained. Based on the frequency distribution category in the value range 0 < TPP < 40 there are 31 people in the very low category and in the value range 40 < TPP < 60 there are 3 people in the low category.

b. Descriptive statistical analysis of student learning outcomes after treatment using maze board games learning media (Posttest)

Research that was conducted at SMA Negeri 11 Maros on class XI IPA 2 students after being given treatment by collecting data from test instruments (posttest) on student learning outcomes, So the data obtained shows that the learning outcomes of students after treatment using maze board games are as follows:

Table 3. Descriptive analysis after treatment (Posttest) XI IPA 2

Parameter	Posttest value
Maximum Value	84
Minimum Value	72
Average	78,11
Standard Deviation	3,096

Based on the results of the descriptive statistical analysis above, it can be seen that the average score after being given treatment (posttest) obtained by class XI MIPA 2 students was 78.11 with a maximum score of 84, a minimum score of 72 and a standard deviation of 3.096.

Table 4. Posttest Academic Proficiency Assessment Criteria

Completion presentation	Posttest frequency	Category
0 < TPP < 40	0	Very low
40 < TPP < 60	0	Low

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60 < TPP < 75	3	Currently
75 < TPP < 90	33	High
90 ≤ TPP < 100	0	Very high

Based on the table above, it can be obtained that the distribution of scores after the posttest of students is in the range of 60 < TPP < 75 with 3 people in the medium category and in the range 75 < TPP < 90 as many as 33 people in the high category.

c. Description of Normalized Gain (N- Gain) or increase in Biology Learning Outcomes after being treated with Maze Board Games Learning Media

The results of the research on the pretest and posttest treatment will be calculated using the N-Gain formula so that it is known how much the learning outcomes of XI IPA 2 students at SMAN 11 Maros have increased. The results of the data processing that has been carried out show that the normalized gain or average normalized gain is 0.68.

Table 5. Description of Improvement in Biology Learning Outcomes After Implementing Maze Board Games Learning Media

Gain value	Category	requency
N-gain < 0,30	Low	
0, 30 < N-gain < 0,70	Currently	17
N-gain > 0,70	High	19

Based on the table above, it can be seen that there are 19 students whose gain value is 0.70, which means the increase in learning outcomes is in the high category and 17 students whose gain value is in the interval 0.30 < N-gain < 0.70, which means an increase in results. His learning is in the Currently category.

3.2 Inferential Analysis

a. Normality test

The normality test was carried out to determine whether the data obtained from the results of students' learning tests were normally distributed both before treatment and after treatment for class

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If sign > α then it can be concluded that the data is normally distributed and if sign < α then the data is not normally distributed. In this study, the results of the normality test can be seen in the following table:

Table 6. Normality test

Shapiro-Wilk		
Treatment	**Sign**	**Information**
Pretest	0,074	Normally
Posttest	0,078	distributed

b. Hypothesis testing

Hypothetical statistics can describe the condition of a population or serve as a reference for testing the truth of the statistical research sample data obtained. This means that estimates or conjectures about a population can be seen from the sample data gained.

Based on the analysis, the N-gain, or average normalized gain, is 0.68, more than 0.29. Thus, the gain index is in the interval 30 > 0.68 < 0.70, so H0 is rejected, namely the normalized gain of student learning outcomes, where this result is in the medium category.

4). CONCLUSIONS

Based on the discussion, the following conclusions come to: 1. The learning outcomes of students before treatment (pretest) using the maze board game learning media obtained an average score of 29.34, which was in the very low category. 2. The learning results of students after being treated (posttest) using the maze board games learning media obtained an average pretest result score of 78.11, which was in the high category. 3. There is an influence of maze board game as learning media on student learning outcomes at SMA Negeri 11 Maros with an N-gain, or normalized average gain, of 0.68 more than 0.29. Thus, the gain index is in the interval 30 > 0.68 < 0.70, which means that H0 is rejected, namely the normalized gain of student learning outcomes.

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