



## **AN APPLICATION OF THE DISCOVERY LEARNING THROUGH PUZZLE GAMES TO IMPROVE GEOGRAPHY LEARNING ACTIVITIES AND OUTCOMES AT SMAN 2 SELAYAR**

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### **Abstract**

*This research aims to improve the activities and learning outcomes of student from class X 2 SMAN2 Selayar. This research uses the Discovery Learning Model through Puzzle Games, with each cycle consisting of planning stages, implementing actions, observing and reflecting. The subjects of this research were students in class X 2 of SMA Negeri 2 Selayar for the 2023/2024 academic year. Data sources were obtained from teachers and students. The data collection is carried out through in-depth interviews, observations, summative assessments, and documentation that will be analyzed descriptive qualitatively and quantitatively. Based on the research results, it can be concluded that the application of learning using the Discovery Learning through puzzle games can improve the learning outcomes and activities students of class X 2 at SMA Negeri 2 Selayar. On first cycle, the percentage of achievement of student learning activities was 71.875% then increased in secondcycle to 93.23%. The increase in learning outcomes can be seen from the knowledge aspect in the pre-cycle reaching 37.5% completeness, in the first cycle reaching 56.25% completeness and increasing in the second cycle with 93.75% completeness.*

**Keywords:** *Student Activities, Learning Outcomes, Discovery Learning, Puzzle Games*

### **A. Introduction**

A teacher is an educator at school. A teacher has a role to convey his knowledge to students, as well as advise and direct students to better behavior than before. As a facilitator, the teacher must be able to develop learning to be more active. This kind of learning will provide sufficient space for student initiative, creativity, and independence following the students' talents, interests, and physical and psychological development.

In reality, even though the curriculum has changed to the Merdeka Curriculum, it requires

an active role for students or what is usually called the student center. However, in reality, it is often found several schools that apply conventional learning so it makes students passive, and students are often found carrying out other activities. One of the things that causes this condition to arise is that teachers do not involve enough participation from students during learning (Teacher Center). Therefore, teachers must be able to create a learning atmosphere that makes students actively play a role in the class.

(Ananda & Hayati, 2020) explain that learning activity is the student's interactions with learning objects in the form of real work from student activities during the learning process. Learning activities are an important part of student activities during the learning process. Students who carry out learning activities will experience changes in themselves by having new experiences at the end of the activity, so it can be concluded that the individual has learned.

After researchers conducted initial observations to determine what problems existed in class, researchers found that students during class time often shifted their focus to smartphone devices, namely playing games and social media, and did not pay attention to the teacher's explanations. So when the teacher ensures that the students have understood the day's lesson, most students are found to be confused about answering the teacher's questions.

The solution to overcome this problem is to improve learning so that the learning process can be carried out well and learning outcomes and student activities will increase, namely by implementing appropriate learning models. In this research, through the application of the discovery learning using puzzle games, it is hoped that it can solve problems related to the focus of students who are often distracted by their smartphone devices so it can help improve their activities and learning outcomes.

Based on several studies conducted, it is concluded that Discovery Learning can improve student activities and learning outcomes. Research conducted by Irmi (2018) concluded that implementing learning using the Discovery Learning learning model through the Game Gets Lucky media can improve learning outcomes and student activities at Unggul State High School, East Aceh. In cycle I, the percentage of achievement of students' learning activities was 76.62% which increased in cycle II to 96.10%. The increase in learning outcomes can be seen from the knowledge aspect in cycle I that reach an average value of 77.63 and increasing in cycle II with an average value of 87.95. According to Titisari Handayani (2016), the Discovery learning model shows that in Cycle I, the percentage of learning completeness in the pre-test was 26% to 68% in the post-test in the low category, so there was an increase of 42%. In cycle II, the percentage of learning completeness went from 32% in the pre-test to 90% in the post-test with a high category, so there was an increase of 58%. These results are by the expected completion criteria and even exceed the target of 75%. The results of this research show that the discovery learning can improve students' cognitive scores. Desi Rahmi (2020) Desi Rahmi (2020) has research results that state the discovery learning model through games can improve the learning outcomes of class and became 77.42% at the end of cycle two.

Based on the description above, it is necessary to carry out Classroom Action Research (PTK) to improve learning activities and learning outcomes, therefore the author conducted research entitled "Application of the Discovery Learning Learning Model through Puzzle Games to improve the activities and Learning Outcomes of Class X 2 SMA Negeri 2 Selayar".

## **B. Methodology**

### *1. Research Design*

This research uses Classroom Action Research (CAR), which consist of two cycles that divided into four stages, namely 1) planning, 2) implementation, 3) observation, and 4) reflection (Arikunto, 2009). The subjects of this research are students in class X 2 of SMA Negeri 2 Selayar for the 2023/2024 academic year that implemented Merdeka Curriculum.

### *2. Instruments*

Data collection instruments in Classroom Action Research (CAR) are observation sheets, questionnaires, field notes, tests, and documentation.

### *3. Technique of Data Analysis*

Data from the research results were processed and analyzed descriptively qualitative. Validation and validity of the findings in this research is carried out with the assumption of high confidence by facts, so to determine validity, researchers will use triangulation techniques. Data triangulation is a data collection technique that combines various existing data and sources

(Sugiyono, 2018). The triangulation technique is a method used to collect permanent data from different data sources.

### C. Findings and Discussion

#### 1. Finding

##### a) Pra Cycle

Based on the results of the cognitive diagnostic assessment that obtained from the pre-test scores carried out before entering the learning material, the results showed that class X2 was classified as a class with low cognitive abilities. From the results of the assessment before taking action, it shows that the majority, namely 20 (62.5%) students had low scores, and 12 (37.5%) students had high scores.



**Figure 1.** X2 Cognitive Diagnostic Assesment  
(Source: Research Documentation, 2023)

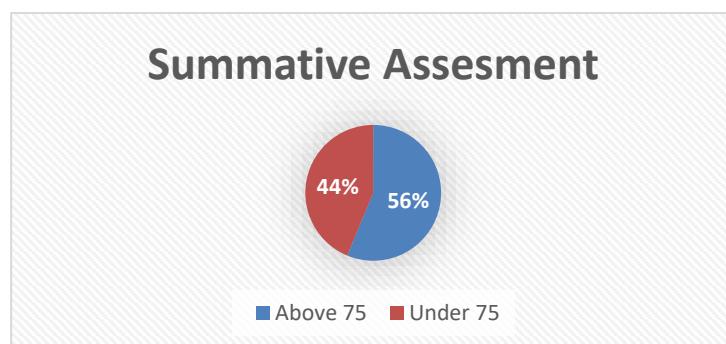
##### b) Cycle One

Based on observations by observers in the cycle I which consisted of observing the learning process and observing the student's learning outcomes, the following results were obtained.

**Table 1.** Process Observation (Students' Activity Data)

No	Observed Performance	Student Participation	Percentage (%)
1	Presence	32	100
2	Individual Involvement	24	75
3	Express Opinions	18	56,25
4	Responding Friends' Opinions	16	50
5	Cooperation	28	87,5
6	Precentration	20	62,5
Average			71,875

After conducting a learning evaluation, namely a summative assessment, the student's learning results obtained at the end of cycle I showed:



**Figure 2.** Summative Assesment Result Cycle I  
(Source: Research Data, 2023)

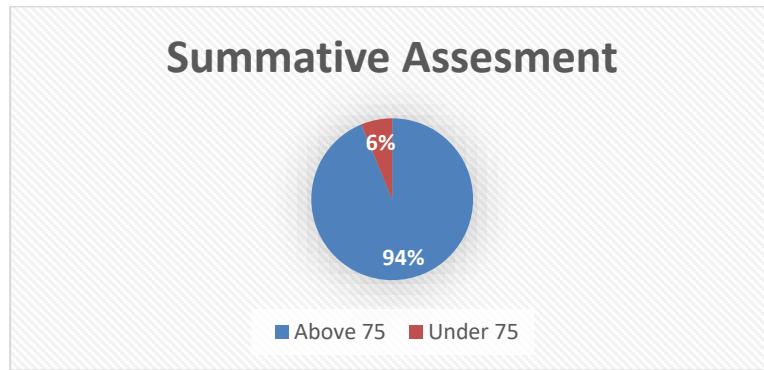
c) Cycle Two

Based on observations by observers in cycle II which consisted of observing the learning process and observing the student's learning outcomes, the following results were obtained:

**Table 2. Process Observation (Students' Activity Data)**

No	Observed Performance	Student Participation	Percentage (%)
1	Presence	32	100
2	Individual Involvement	30	93,75
3	Express Opinions	25	78,125
4	Responding Friends' Opinions	28	87,5
5	Cooperation	32	100
6	Precentration	32	100
Average			93,23

After conducting a learning evaluation, namely a summative assessment, the student learning results obtained at the end of the cycle I showed:



**Figure 3. Summative Assesment Result Cycle II**  
(Source: Research Data, 2023)

Based on the student's learning outcomes data in the cycle I, there was a significant increase in the assessment in the cycle II which is presented in Table 3.

**Table 4. The Comparison of average learning outcomes and student activities for cycles I and II**

No	Uraian	Cycle			Information
		Pre Cycle	I	II	
1.	Cycle Learning Outcomes (%)	37,5	56,25	93,75	Increase
2.	Student Activities (%)	-	71,875	93,23	Increase

*2. Discussion*

*a). Cycle One*

At the planning stage, researchers conducted a study of the Learning Objectives Flow and prepared a Teaching Module consisting of 2 meetings in the first cycle of the learning process. The Learning activities are designed using Discovery Learning. The Cycle I action implementation activities are held in 2 meetings on Monday, August 1 2023 and August 8 2023. The learning

activity began by observing a video about "Understanding the Palu Koro Fault, Trigger of the Powerful Earthquake in Palu and Donggala" which is broadcast via LCD Projector. The function of showing the video is to provide stimulus to individual students, so that it will raise questions from students. Then the students were formed into 5 groups, each consisting of 6 and 7 people per group. The teacher will distribute different puzzles to each group which will be put together by students to determine what material objects they need to find out. After the puzzle is arranged, questions will appear to which each group will seek answers. Each group will discuss to find an answer of the questions that are contained in the puzzle. Students are also asked to prepare presentation materials in the form of completed LKPD. After that, each group presented the results of their group's work while the other groups respond or provide input of the things that are not yet understood. When the discussion ends the teacher provides explanation, reinforcement and appreciation to each group.



**Figure 3. Learning Activities: Putting Together a Puzzle**  
(Source: Research Dokumentation, 2023)



**Figure 4. Learning Activities: Working on LKPD**  
(Source: Research Dokumentation, 2023)

Based on observations made by observers in cycle I that consisted of observing the learning process and observing learning outcomes, the average student activity was 71.875%. After conducting a learning evaluation, in this case a summative assessment, the student learning results obtained at the end of the cycle I showed that as many as 18 students had achieved completeness with a score above the KKM (75), while 14 students had not achieved a complete score with a score of under KKM.

After conducting a learning evaluation, in this case, a summative assessment, the student learning results obtained at the end of the cycle I showed that as many as 18 students had achieved completeness with a score above the KKM (75), while 14 students had not achieved a complete score with a score of under KKM.

#### *b). Cycle Two*

Cycle II learning is carried out in two meetings, starting with showing a learning video related to the learning material, namely the Video "Taka Bonerate National Park". The students are asked to observe the video and raise several questions from the students. 7 students asked

questions after the video ended. From the questions that arise, it is hoped that students can construct their knowledge to solve existing problems themselves, so that they will be able to produce a new concept with the Geography Study Object. In the group discussion activities the teacher distributes puzzle pieces to each group. Each group will assemble the puzzle that has been distributed, after the puzzle is arranged, clues will appear to find answers to questions that previously appeared from the students. Based on these instructions, students can move to find the answers scattered in the classroom and front of the classroom corridor, as if students were playing a treasure hunt. After all the answers have been collected, each group will be able to answer the questions that appeared previously. So that it doesn't seem boring, class discussion activities will be carried out in the form of talk shows, so that students can exchange ideas in class in a more relaxed and enjoyable. Through this game, it is hoped that it can provide more motivation to students to be more active in the learning process. Next, the teacher provides reinforcement and detailed explanations related to the material being studied.



**Figure 5. Learning Activities: Treasure Hunt**

(Source: Research Dokumentation, 2023)



**Figure 6. Learning Activities: Working on LKPD**

(Source: Research Dokumentation, 2023)

Based on observations made by observers in cycle II that consisted of observing the learning process and observing learning outcomes, the average student activity was 93,23%. After conducting a learning evaluation, in this case, a summative assessment, the student learning results obtained at the end of cycle II showed that as many as 30 students had achieved completeness with a score above the KKM (75), while only 2 students had not achieved a complete score with a value below KKM.

#### **D. Conclusion**

Based on the research results, it can be concluded that the application of the Discovery Learning through puzzle games can improve the learning outcomes and activities of students at SMA Negeri 2 Selayar. In cycle I, the percentage of achievement of students' learning activities was 71.875% which increased in cycle II to 93.23%. The increase in learning outcomes can be seen from the knowledge aspect in the pre-cycle reaching 37.5% completeness, in the first cycle reaching 56.25 completeness, and increasing in the second cycle with 93.75% completeness.

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