Effectiveness of Powerpoint-Assisted Discovery Learning Model on Critical Thinking Abilities in Elementary School Mathematics

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Abstract— This study aims to determine the effectiveness of learning models assisted by power point media on the critical thinking skills of mathematics elementary school students. The writing of this research uses qualitative research methods, with a descriptive approach, where the basis of the discussion takes the results of literature studies, through several sources from books and relevant scientific articles and journals from previous research results that are in accordance with the topic of discussion. Based on the results of this study, it is found that the discovery learning learning model assisted by power point media has effectiveness on the critical thinking ability of elementary school students' mathematics. By using the discovery learning model assisted by power point media, students become easier to understand learning materials visually and are active and creative during learning activities. By applying the discovery learning method assisted by power point media at the elementary level, it is hoped that it can improve the quality of learning, and students can better understand a concept from learning.

Keywords— Discovery Learning, Power Point, Critical thinking.

I. INTRODUCTION

Education is one of the efforts used to improve the quality of human resources. Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual religious strength, self-control, personality, intelligence, noble morals, and skills needed by oneself, society, nation, and state. One way to obtain education is by participating in learning activities at school. Good learning outcomes can obtained through Study with truly [1].

The Independent Curriculum learning process requires active participation from students and a paradigm shift from teacher-centered learning to student- centered learning. In addition, learning that was initially only done with method lecture Already replaced with implementation approach scientific (scientific approach) is a learning approach that emphasizes student activities in observing, asking, reasoning, trying, and networking in participating in learning activities at school, especially in learning mathematics.

Acquisition knowledge learning mathematics own significant value for people from all background behind, because matter This equip they with necessary tools For in a way effective overcome various frequent difficulties appear in life everyday life [2]. In addition, mathematics have role important in progress Knowledge Knowledge and Technology (IPTEK). Perspective This in line with view Sumarmo [3]stated that that mathematics has an important meaning Because capable contribute to progress field other sciences and can applied in context everyday. In order to be able to understand draft mathematics in a way effective, students must own a series ability of one of them is ability think critical [4].

Wrong the only one on mathematics learning used to prepare students to be able to use mathematical thinking patterns in their daily lives as well as in learn other sciences. Wahyudi & Anugeraheni, 2017 argue that mathematics is a universal branch of science that includes ideas, concepts, and abstract concepts that cannot be separated from human life. Ahmad Susanto [5]argues that mathematics is one of the fields of study that exists at all levels of education, from elementary school to college. It can be concluded that mathematics is a science that studies patterns of regularity, organized structures and discusses numbers, calculations and abstract concepts that cannot be separated from human life [6]. Mathematics learning is the right learning to be used to develop basic abilities needed by students, such as students' thinking skills, but in reality according to [7], there are still many teachers who have not been able to implement it properly, because teachers understand the learning well.

Mathematics learning becomes a boring subject for students because the learning model chosen is not appropriate for the students. learn. Learning outcomes

participant educate Class VI of Kertosari 01 Public Elementary School, Geger District, Geger Regency Madiun Not yet fulfil desired expectations. As many as 53.85% of participants educate on the test daily eye lesson Mathematics need remedial for repair value to be sufficient Criteria Minimum Completion Criteria (KKM). Mathematics need given to student For equip they with ability think logical, analytical, systematic, critical and creative with implementing learning models. Need existence effort For repair activity Study teach more emphasize on development ability think critical participant educate, one of them using the Discovery Learning (DL) Model, which will help participant educate Study For self they yourself and apply knowledge anything in a new environment, which in the end will reach effective learning [8]. Implementation of the Discovery Learning Model assisted by Information Technology and Communication (ICT) is currently necessity. Using power point media, teachers can present material systematically and efficiently, accelerating understanding. participant educate without reducing the exploration elements [9]. Learning models Discovery Learning assisted by power point media oriented can develop ability think critical participant educate [10].

Ability level critical thinking participant students in Indonesia are generally still low. They do not yet have the ability to think critically about what to do or what to solve regarding an existing problem. People who are able to think critically are people who can conclude what they know, know how to solve problems and are able to find relevant sources of information as support for problem solving [11]. It can be concluded that critical thinking is a problem and finding sources to support problem solving.

Discovery Learning Model assisted by power point media is a pedagogical approach where teaching materials are not delivered in their entirety. Instead, participants educate encouraged to be actively involved in various exploration and elaboration activities [12]. Discovery learning model assisted by power point media consisting of several stages. In the process learning, The application of the discovery learning model can guide students to be more active. Implementation of the model discovery learning assisted by power point media against ability think critical mathematics participant educate can be a reference material to look at effectiveness of discovery learning model assisted by power point media against ability think critical

mathematics participant educate in a material [13]. Activities This aiming For knows effectiveness of discovery learning model assisted by power point media to ability think critical mathematics participant educate school base [14].

II. METHOD

On In this study, the author uses a qualitative research method, with a descriptive approach, where the basis of the discussion is taken from the results of literature studies, through several sources from books and scientific articles and journals that are relevant to the results of previous research that are in accordance with the topic of discussion. Qualitative research is a research paradigm that emphasizes more on interpretation and meaning and knowledge from the perspective of participants. Meanwhile, according to Muhammad Rijal Fadli [15]. , qualitative research is carried out with a research design whose findings are not carried out through a calculation or statistical process, but rather has the aim of being an effort to reveal phenomena in a holistic contextual manner [16]. This study aims to explore experiences and perceptions participant educate and teachers regarding the application of the PowerPoint-assisted Discovery Learning model in improving their critical thinking skills.With a descriptive approach, according to [17]a descriptive approach is a study whose data results are in the form of a description of the problems reviewed on a topic by providing a description of what happens in real life. The implementation of this research aims to obtain original information and data by focusing on literature reviews, to obtain data, as well as sources and supporting evidence related to the problems being discussed. The technique used in the study uses literature study, based on previously existing research data in several reputable journals, and the results are reviewed and analyzed as supporting material. After the data is collected, a conclusion is obtained as an answer to the results of the discussion. In line with Gunawan's opinion [18], the qualitative method seeks to understand and describe the meaning of a human behavioral event in certain circumstances according to the researcher's perspective [19].

III. RESULT AND DISCUSSION
Definition of Discovery Learning Model Assisted by Power Point Media
Discovery learning model is a learning model in understanding learning concepts, meanings, and relationships based on the intuition process to reach a

conclusion. Discovery learning is one of the more dominant learning strategies in student involvement in carrying out observations, scientific actions, experiments where the results of these actions will be obtained. conclusions [20]. Discovery learning is an effort to increase student interest, creativity, and awareness in learning. Because in the discovery learning model as a whole so that students are stimulated to seek know for themselves and build students' understanding of a concept based on learning experiences.

Discovery learning model is one of the learning models used to improve learning outcomes and develop active learning methods for students by obtaining their own methods, so that learning outcomes will be obtained that are easier for students to remember. Students can also think more critically by trying to solve their own problems, where habits like this will be very beneficial for community life. According to Jerome Brunner [21], the discovery learning model in its learning can provide encouragement for students to conduct investigations to find scientific truths not by being invited but by finding them themselves. discovery learning model can also make students able to ask questions and then draw conclusions based on the principles of examples of experience. Jerome Brunner uses the discovery learning model by means of students who organize the learning materials being studied. This discovery learning occurs based on the results of students who manipulate, form structures and transform information in such a way that students can finally find new information. In line with the opinion [22]. in its application, the discovery learning model must require students to find new things, in the process of finding new things, of course, creativity must be required so that the discovery learning model & its syntax can improve the thinking process of students. According to Jerome Brunner, this discovery learning model has benefits in: 1) Increasing students' learning potential; 2) shifting from extrinsic to intrinsic rewards; 3) activity learning in a way overall based on the process of find; 4) as receptacle in practice memory. The discovery learning model is a basic model.

The teaching and learning process is often faced with abstract material and outside the students' daily experience. So this material becomes difficult for teachers to teach and difficult for participants to understand. educate. According to Oktariani [23], visualization is the management in making a images, diagrams or animated forms to display information. Two-dimensional images or three-dimensional models

are visualizations that are often used in learning. In other literature, Mulyawan in Maryatun [24]stated that " Microsoft PowerPoint is a type of computer program included in Microsoft Office which is used for presentations and is a multimedia-based program". Based on the research results, Hikmah [25]stated that power point learning media can attract students' interest so that they get satisfactory results, so that when the learning outcomes of participants educate satisfactory, then the learning media is in the form of power point very effective.

Peter Facione [26]: "Critical thinking is the ability to make decisions based on logical and analytical thinking developed through experience and education. It includes skills in the analysis, evaluation, and synthesis of information". Richard Paul and Linda Elder [27], "Critical thinking is an intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action ".

The Effectiveness of the Discovery Learning Model Assisted by Power Point Media Against Ability Think Critical Elementary School Students

The implementation of learning can run because the presence of teachers, participant students and curriculum. Everything is interrelated with each other. Improvement in good learning outcomes is not only supported by the students' willingness to learn, but also by the learning methods used by an educator or teacher also affects the learning outcomes of students, by using a fun method will make students more comfortable and not easily bored during the learning process. However, in fact there are still some teachers who use learning models that are less interesting and seem monotonous for participant students so that this makes students tend to be lazy and afraid to learn. In addition, teachers still dominate during the implementation of learning so that participants educate tend to be more passive. If this activity is continuously carried out by teachers, it will have a negative impact on the quality of education. education and participant students will be less creative and unable to compete in the future future [28] Discovery Learning is a learning model that tend push participant educate For do observation, experiment or scientific action so get conclusions from the results that have been carried out. In this model participant educate asked to get what has been learned by

themselves later participant students explore the knowledge and can understand its meaning. In the activity This teacher only acts as a facilitator. Discovery learning model give freedom for students to follow their interests as an effort to achieve their desires and goals. By using power point media, teachers can present material systematically and efficiently, accelerating understanding. participant educate without reducing the exploration element.

Discovery Learning model used in this study emphasizes students' direct experience in solving mathematical problems through exploration and conversation. Power Point is used to support the learning process with First, presenting material visually through images, diagrams, and animations makes it easier for students to understand complex mathematical concepts. Second Serve problem mathematics in a way sequentially with steps possible solution understood students. Third, make learning more interesting and interactive, which invites students to be more active in asking questions and discussing. The use of power point media helps to display mathematical problems or challenges that participants must find solutions to. educate, and indirectly, this trains participants' critical thinking skills. educate. With use method discovery learning assisted by power point media this, it is expected capable direct students so that they can active can contribute and get involved in the learning process more effective as well as can Study with independent in accordance with material that has been studied in order to achieve expected goals [29].

Learning Outcomes with the Discovery Learning Model Assisted by Power Point Media on Students' Abilities Think Critical Elementary School Students

Learning model Assisted Discovery Learning with PowerPoint media has great potential in increase ability think critical participant educate, especially at the level Elementary School. This model give student chance For explore and discover Alone knowledge through experience direct and learning based on problem. Usage PowerPoint as a visual media to support the learning process with serve material in a way interactive, interesting, and easy understood by students. The following This is discussion about results learning with this model to ability think critical participant educate. Skills think critical for student very much important, thing This Because participant educate demanded to be able to finish the problem myself. For increase skills think critical and results Study participant educate must

implementing an appropriate learning model so that participants educate can more easy understand learning. Participants educate can to obtain skills think good criticism and results Study increase with implementing the discovery learning model, besides That discovery learning model assisted by power point media can also get used to student in find draft Study so that easy remembered and not easy forgotten.

According to the results of research conducted by [30] There is effectiveness in application of learning models discovery learning in learning mathematics reviewed from skills think critical participant educate in application of learning models discovery learning participant educate school base. Discovery learning learning model assisted by power point media, demanding participant educate to build participants' knowledge educate Alone by conducting an experiment and finding a principle from the results of the experiment. In this stage This participant educate stimulated For look for knows and want know. Participants educate pushed For do analysis to a the thing that is being studied in eye lesson mathematics the together with Friend his group. Through activity observation that's it participant educate can trained For Can think critical so that Finally participant educate can to obtain principle as well as concept from a object real or object said. With observe material visually, thinking, and concluding participant educate moreeasy understand material learning, this is one of the superiority from the discovery learning learning model that can be make participant educate increase understanding in learning. With understand material participant educate can convey his idea through discussion groups and process data based on results discussion group.

According to research results (ER. Diana. 2022), the implementation of learning mathematics with the Discovery Learning model more significant compared to with use of the Inquiry Learning model seen from ability think critical student grade 5 of elementary school. This study also can proven from results descriptive at the level think critical class Experiment 1 and 2. Ability level think critical class Experiment 1 uses the Discovery Learning model the mean obtained was 66.41, the maximum of 84 and a minimum of 40. While in class Experiment 2 uses the Inquiry Learning model obtained mean value of 58.55, value maximum of 81, and the minimum value of 30. mathematics subjects, learning outcomes with the discovery learning model

also has an impact on the understanding of elementary school students ' science learning. According to the research results the results learning with applying the discovery learning model to understanding Study elementary school students are very looks like one of them in eye Science lesson. Concept understanding elementary school students through mosel discovery learning for the elementary school students very believed can increase understanding Study elementary school students through the discovery learning model for the elementary school students very believed can increase understanding learning science such as: 1) students can interpret how the learning concept by conducting discussions between groups of students can make interpretations regarding the learning concept regarding the material of force; 2) distinguishing objects according to their properties and concepts by conducting experiments guided by the teacher; 3) students can make summary and can conclude the learning material yourself into a concept learning; 4) students can make a verbal description of learning. With several indicators, it is clear that the application of the discovery learning model has a great influence on the learning outcomes and level of understanding of elementary school students, because this discovery learning model can increase students to be more active in learning activities so that no students appear passive in class.

This is in line with the results of research in class IV SDN Tegalrejo 02 Salatiga which has been carried out by [31]that learning using the discovery learning model can improve learning understanding, learning outcomes, and critical thinking skills. participant educate. Implementation of the discovery learning model in The elementary school can improve students' understanding of the material on flat shapes. This is proven by data from the pre-cycle, cycle I and cycle II at the elementary school where.

Participants learn to be more critical in thinking by using the discovery learning model. This is means, with critical thinking skills in participants students at the elementary school experienced an increase learning outcomes and learning comprehension. Because when students are able to think critically and increasing learning outcomes means that participants educate understand the learning material. Use media power point during learning make participant Students are more interested in paying attention to the images or animations on the presentation slides. Can stated that the application of the discovery learning model assisted by

power point media in the elementary school very effective and have influence to results learning and understanding participant educate So more Good.

IV. CONCLUSION

Based on the results of the analysis and discussion, the results of this study can be concluded that Discovery learning model is one of the learning models used to improve learning outcomes and develop active student learning methods using their own techniques. This learning method is often referred to as learning that emphasizes discovery. This learning model basically emphasizes students to be more active and creative in learning so that students can find concepts and can better master the learning materials that have been given.

By using the discovery learning model in elementary school, it will increase the enthusiasm for learning in students, because by using this model, teachers can provide a more comfortable learning atmosphere in the implementation process, because by using this method, students will be more active during the learning process, so that participant Students will not get bored easily and can understand better learning materials. With using the discovery learning learning model in elementary school, will add Spirit learning for participants educate, because with using this model teachers can more to give atmosphere comfortable learning in the implementation process, because with using a learning model this, participants educate will more active during the learning process, so that participant educate No will easy bored as well as student can more understand material learning.

Learning model discovery learning at elementary school level, It is hoped that this will improve the quality of learning, and students will be able to understand better. a concept of learning itself. In addition, it also participant educate can train his ability to think critically. Because if students can think critically and can understand the learning material that is taught/given, then a This learning can be said to be successful. This Microsoft Power Point program can present objects to be used as examples in the form of images or animations that are more interesting and impressive, so that participants can experience learning. education is more fun and not boring and speeds up the learning process. Therefore that, learning model discovery learning assisted by power point media can stated effective if implemented in Elementary Schools (SD). Because with use method learning This can give influence to skills

think critical participant educate, so that can give understanding more visually Good to participant educate.

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