The Effect of *the Active Learning* Model of the Elephant Proboscis Game Type in Improving Class B Science Knowledge at Kindergarten 16 Dharma Wanita Mandai, Maros Regency

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ABSTRACT

Early childhood education is very important to help physical and spiritual growth and development so that children have readiness to enter further education. From an early age, children must be introduced to various knowledge, one of which is science. Science learning can foster curiosity through exploration activities. The objectives of this study: (1) to determine the level of science knowledge before and after the application of the class B elephant trunk game *type active learning* model at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency, (2) to determine the influence of *the active learning* model in improving class B science knowledge at Kindergarten 16 Dharma Wanita Mandai, Maros Regency. This study is a quantitative research with a type of pre-experimental research using *a one group pretest last* design. The population taken was class B of Kindergarten Negeri 16 Dharma Wanita Mandai which amounted to 59 students and the sample used was class B2 as many as 20 students. The sample technique used is *purposive sampling*. The instrument used is an observation sheet. The analysis techniques used are descriptive and inferential analysis. The results showed that the science knowledge of class B students before the active *learning model* was applied obtained an average score of 10.67, and after the active learning model was applied, the average score was 20.41. When compared to the scores before and after the active learning model was applied, there was a positive influence on the results of students' science knowledge.
Keywords: Active Learning *Model*, Science Knowledge

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ABSTRACT

Pendidikan anak usia dini sangat penting dilakukan untuk membantu pertumbuhan dan perkembangan jasmani maupun rohani agar anak memiliki kesiapan dalam memasuki jenjang pendidikan lebih lanjut. Sejak dini anak harus diperkenalkan dengan berbagai pengetahuan, salah satunya yaitu sains. Pembelajaran sains dapat menumbuhkan rasa ingin tahu melalui kegiatan eksplorasi. Tujuan penelitian ini: (1) untuk mengetahui tingkat pengetahuan sains sebelum dan setelah diterapkan model *active learning* tipe permainan belalai gajah kelas B di TK Negeri 16 Dharma Wanita Mandai Kabupaten Maros, (2) untuk mengetahui pengaruh model *active learning* dalam meningkatkan pengetahuan sains kelas B di TK Negeri 16 Dharma Wanita Mandai Kabupaten Maros. Penelitian ini adalah penelitian kuantitatif dengan jenis penelitian pre-eksperimen menggunakan desain *one group pretest postest*. Populasi yang diambil adalah kelas B TK Negeri 16 Dharma Wanita Mandai yang berjumlah 59 peserta didik dan sampel yang digunakan yaitu kelas B2 sebanyak 20 peserta didik. Teknik sampel yang digunakan yaitu *purposive sampling*. Instrumen yang digunakan yaitu lembar observasi. Teknik analisis yang digunakan yaitu analisis deskriptif dan inferensial. Hasil penelitian menunjukkan bahwa pengetahuan sains peserta didik kelas B sebelum diterapkan model *active learning* memperoleh nilai rata-rata 10,67, dan setelah setelah diterapkan model *active learning* memperoleh nilai rata-rata 20,41. Jika dibandingkan dengan nilai sebelum dan setelah diterapkan model *active learning* maka terdapat pengaruh positif terhadap hasil pengetahuan sains peserta didik.
Keywords: Model *Active Learning*, Pengetahuan Sains

1). INTRODUCTION

Early childhood education is very important to help physical and spiritual growth and development so that children have readiness to enter further education. Early childhood education is education that is carried out with the aim of assisting the growth and development of children as a whole and emphasizing the development of all aspects of personality (Yanuarsari, Revita, 2022).

Basically, learning is a process of interaction between students and the environment that can change behavior for the better (Yanuarsari, Revita, 2022). Learning is an effort made deliberately by educators to provide knowledge, organize and produce a learning environment system using various methods so that students can carry out learning activities effectively and efficiently and with optimal results (Festiawan, 2020). Early childhood learning must be designed so that it is not burdensome and boring, so the learning atmosphere needs to be made fun, warm, and natural (Sholeha, 2021). The learning process that takes place in the classroom is expected to be able to support the learning process of students and stimulate and encourage them to be active independently. Therefore, during the learning process, an appropriate learning model is needed so that learning becomes effective.

A learning model is a learning activity that is deliberately designed or designed with the aim that teaching and learning activities can be easily passed and accepted by students (Ahyar, Dasep Bayu,

2021). The learning model refers to the learning approach that will be used, including teaching objectives, stages in learning activities, learning environment and classroom management (Octavia, 2020). Using a learning model will support the learning process of students directly. The learning process as a form of treatment given to students must pay attention to the characteristics of each stage of child development. One of the children's development that must be developed is cognitive ability. One of the cognitive abilities of students that must be developed is science.

Science is the activity of conducting experiments and activities that discover something through observation (Setyowati, Ridwan, & Iswatiningtyas, 2022). Children learn science through hands-on activities such as observation and experimentation. The science activities introduced must focus on early childhood. Learning will be more effective if children are directly involved with the object being studied, children not only see but also feel directly the learning experience (Astuti & Nurhafizah, 2023).

Based on the results of observations and interviews, the researcher obtained information that the results of the assessment of science knowledge in class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency had not been achieved. Students have not shown exploratory and investigative activities, know cause and effect and have not been able to solve simple problems in daily life. It was also revealed that learning is still teacher-centered, students are not facilitated to be directly involved in observation and do not conduct their own experiments so that students cannot develop their process skills optimally. As a result, students do not understand the teacher's explanation of the science concept. This is because the learning model provided by teachers does not attract students to be actively involved in science learning.

This problem arises because the concept of cause and effect has not been developed in students, lack of exploratory and investigative activities, students' ability to solve problems and think, and so on (Laily & Rakhmawati, 2023). Therefore, teachers must be able to be facilitators in developing aspects of student development. Creating an active learning atmosphere certainly requires a learning model. The solution to overcome the problem is to apply a model that suits the characteristics of the learners. One of them is by applying the active learning model.

The active learning model is a model that emphasizes the activeness of students during the learning process while the teacher only acts as a facilitator, which means that the role of the teacher

is not so influential to master the learning process. The elephant trunk game type of active learning model is learning that gives students the opportunity to be actively involved while playing elephant trunk experiments. It is hoped that by applying the elephant trunk game-type active learning model, it can increase students' science knowledge.

The game of elephant trunk that produces bubbles is one of the games that is very loved by children. In addition, the materials used in making the elephant trunk science experiment are very easy to find and even this game can train various motor, cognitive and social skills of students.

Based on the description above, the researcher is interested in researching "The Influence of the Active Learning Model of the Elephant Proboscis Game Type in Improving Class B Science Knowledge at Kindergarten 16 Dharma Wanita Mandai, Maros Regency". With the aim of determining the influence of the elephant trunk game-type active learning model in improving class B science knowledge at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency.

2). METHODS

This type of research is a pre-experimental research that is included in one of the types of quantitative research design. It is called a pre-experiment because it is an experiment that has not yet been serious, this is because there are still external variables that affect the formation of dependent variables. The results of the experiment are not only influenced by independent variables, this is because there are no control variables and the sample are not randomly selected (Sulaiman & Sitti: 2020). This research aims to improve science knowledge in class B students of Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency through *an active learning* model of elephant trunk game. The researcher used pre-experimental research because this type of research was considered suitable in improving science knowledge in class B students of Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency.

The design used in this study is One Group Pretest Postest. The design of this study was carried out pretest to find out the initial state of the subject before receiving the treatment, so that the researcher could see the condition of the subject before or after the treatment and the results could be compared or observed changes (Tuti Khairani Harahap, 2021). The location of this research was carried out at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency which is located on Jl. Siswa, Bontoa, Mandai District, Maros Regency, South Sulawesi.

The approaches in this study are (1) the pedagogical approach includes various teaching and learning techniques used in education and psychology (Nur Agus: 2024); (2) Psychological Approach, This approach is used to determine the level of science knowledge achieved by students in class B of Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency. The population in this study is class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency. The sample taken in this study is class B2 which totals 20 students because based on the information obtained, class B2 is still relatively low in science knowledge and the learning style of class B2 students is more dominant in kinesthetic learning style.

Data collection techniques are the most important step in research, because the main purpose of research is to obtain data. The data collection technique used is observation of symptoms with systematic recording. Observation is a systematic method to collect data about research subjects, either directly or indirectly (Sugiyono, 2018). The observation method is used to determine the level of students' science knowledge during learning

The research instrument uses observation sheets. An observation sheet is a pedestrian that contains indicators for making observations (Sukendra & Atmaja, 2020). Observation sheets usually contain notes related to the object to be observed or investigated. Through this study, observations were made to determine the level of students' science knowledge during learning.

In this study, instrument validation was carried out in the form of an observation sheet. This observation sheet is carried out by expert validation, where an instrument in the form of an observation sheet is given to the validator. Validity comes from the word "validity", which means the precision and accuracy of a measuring instrument or instrument in performing its measuring function. If a test is able to provide measurement results that are in accordance with the purpose of the measurement, then the test is said to have high validity (Suhirman & Yusuf, 2019).

The analysis techniques used are (1) descriptive analysis techniques, Descriptive analysis is a program in SPSS that is used to display data statistics so that researchers can describe and analyze the results of research data (Moch, bahak udin). Based on the data that has been collected, according to Budiwanto (2020) the purpose of descriptive statistical analysis is to provide an overview of the state or status of phenomena related to the research problem; (2) inferential analysis

techniques, according to Danuri & Maisaroh, (2019) Inferential statistics are statistical techniques used to analyze sample data and apply the findings to the population.

3) RESULTS AND DISCUSSION

Based on the results of research conducted in class B at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency before applying the active learning model to science knowledge. In this study, before providing treatment in the form of an active learning model, it illustrates that the science knowledge of class B students has not developed properly. The results of the data obtained are derived from observations or observations when students are doing learning and playing activities. An overview of the development of science knowledge can be seen from the results of observations using an assessment instrument for the development of science knowledge in students.

The results of the observation of the development of students' science knowledge in the form of assessment instruments from the assessment scales of BB (Not Yet Developed), MB (Starting to Develop), BSH (Developing as Expected), and BSB (Developing Very Good), as many as 10 questions. The pretest and posttest were given to one group, namely class B2 with the number of students who took part in the pretest as many as 15 people, consisting of 8 men and 7 women.

The results of the research conducted were obtained that the pretest score before the active learning model was applied received the highest score of 13 and the lowest score of 7 with an average score of 10.67. There were 5 students who obtained the highest scores in the pretest. Meanwhile, the lowest score in the undeveloped category was only obtained by 1 student.

The results of the posttest after being treated in the form of an active learning model obtained the highest score of 28 and the lowest score of 7 with an average score of 20.41. The category developed very well as many as 4 students, while the category developed according to expectations as many as 9 students. The category began to develop as many as 3 students and 1 student who was in the undeveloped category. To see the comparison of the results of the effect of the application of the elephant trunk game type active learning model in improving the science knowledge of class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency, it can be clearly seen in the graph below:

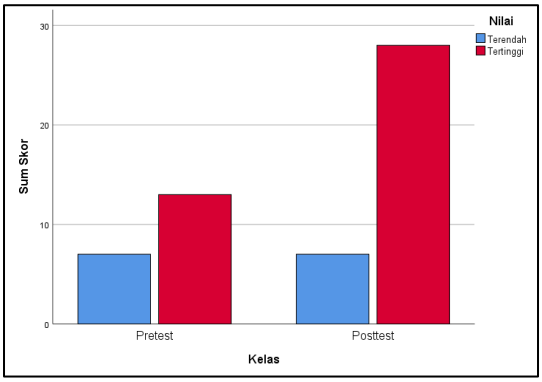

Figure 1. Pretest and *Posttest Comparison Chart*

Based on the graph above, it can be seen that the application of *the active learning* model to the development of students' knowledge has a significant value comparison between before and after the implementation of the *active learning* model. The data from *the pretest* scores was followed by 15 students while *the data on the posttest* scores were followed by 17 students. The comparison is the lowest score from *the pretest* of 7 and from the *posttest* of 7, while the highest score of the *pretest* is 13 and from *the posttest* is 28. This proves that there is a significant difference in influence from before the implementation of the *active learning model* and after the implementation of the *active learning model.*

Furthermore, the data was tested using *a paired sample* t-test to find out whether there was an influence or not in the study. The results of the *paired sample* t-test are presented in the following table:

Tabel 1. Paired Sample T-test Test Result

				95% Confidence Interval of the Difference				
	Mean	**Std. Deviation**	**Std. Error Mean**	**Lower**	**Upper**	**t**	**df**	**Sig. (2-tailed)**
Pretest - Postest	-10,000	3,761	.971	-12,083	-7,917	-10,299	14	.000

It can be seen in table 1 that the results of the analysis in the inferential statistical test, namely the paired sample t-test, obtained the results of the hypothesis test of the calculated t-value -10.299. Then the value of sig. (2-tailed) of 0.000 < 0.05 so that it can be stated that Ho is rejected and Ha is accepted. This means that there is an influence of *the active learning model* in improving the science

knowledge of class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency. It can be concluded that there is a difference in the average value of students' science knowledge before and after the active learning model is applied, so this learning model is indeed appropriate to be applied in improving students' science knowledge.

The level of science knowledge before the implementation *of the active learning* model of the class B elephant trunk game type at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency

Based on the results of research that has been carried out, before the implementation of *this active learning* model, students were not actively involved in the learning process. During learning, students are not actively involved in activities. Before applying the *active learning* model, educators show a poster with a bubble picture and students pay close attention to the displayed poster. While showing a poster with a picture, the teacher explained the process of forming bubbles. After that, the teacher gave an example by blowing bubbles that resembled an elephant's trunk. Next, the teacher formed a group so that students played soap bubbles that resembled an elephant's trunk.

Based on group activities carried out in class, students are less active in making soap bubbles that resemble elephant trunks. This is because from the group activities, students who have advantages will feel hampered by students with less abilities, so that it can interfere with group cooperation (Hasibuan, 2022). Therefore, it can be concluded that the results of students' science knowledge before the application of the elephant trunk game type active learning model have not increased optimally. This can be seen in the process of group activities carried out that there are still many students who have not been able to blow soap bubbles resembling elephant trunks properly. In addition, there are still many students who look passive in the group activities carried out.

This is due to the fact that science learning requires learners to actively participate in each process, so that they can develop their own knowledge and understanding. Students will not be interested in science learning that does not involve active activities (Yuli Hafizah, 2021). Learner-centered learning will increase activeness and allow them to explore knowledge directly through concrete objects and form relevant knowledge for learners. Science games are one great way to teach learners about new things because they have the opportunity to see, observe, and try these science games for themselves. After that, students will learn many new things and convey the results of their science games (Poppyariyana & Munajat, 2020).

In this study, there are several steps in carrying out the learning process. This activity was carried out twice, namely in the first activity, students paid attention to posters with pictures of bubbles and gave examples made by teachers about soap bubbles that resembled elephant trunks. Furthermore, the second activity was carried out by applying the active learning model. Each student is directly and actively involved in making soap bubble games that resemble elephant trunks. Students are given hands-on experience to try and experiment. Through this soap bubble game that resembles an elephant's trunk, students are interested in trying to do it.

One of the basic competencies that students must have in learning science is to be able to understand science concepts and attitudes related to their daily lives. According to the attitude of science, early childhood must be responsible, curious, disciplined, diligent, honest, and open to different opinions (Nafiqoh & Wulansuci, 2020).

Science learning allows learners to explore and improve their developmental abilities, especially cognitive. Teaching science to early childhood does not need to just teach science in a simple way. Because of the high interest and curiosity of early childhood, teachers must create learning that refers to problem-solving that children face in daily life (Musi, Bachtiar, & Herlina, 2022).

The level of science knowledge after applying the *active learning model of the* elephant trunk game type class B at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency

Based on the results of the research that has been conducted on February 21, 2024, it can be concluded that the science knowledge of class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency can be improved through *an elephant* trunk game-type active learning model. The increase in students' science knowledge can be seen from the observation that before the *active learning model* was implemented, the average level of students' science knowledge was 10.67 and after the active learning model was applied, there was an increase in students' science knowledge which reached an average of 20.41.

This science game was chosen to improve logical thinking skills and make students directly involved in the learning process. This will make students feel interested and excited in learning to follow the learning procedures. Through science experiments, educators are more innovative and creative in the learning process. This is also one of the media that can attract students' attention and interest in learning activities (Poppyariyana & Munajat, 2020). In order to make learning more

interesting and supportive during the learning process, a learning model is applied, namely the active learning model.

This active learning model can encourage children to learn independently, learn actively, participate in learning, and find solutions to solve problems during the learning process (Anggraeni & Gupita, 2022). Active learning activities make students feel free, excited, and passionate and also very fun. Active learning emphasizes more on the activeness of students, therefore active learning is very useful in the learning process because educational goals can be achieved properly and efficiently (Roza & Hartati, 2021). One way to improve early childhood development is to provide innovative and creative education and teaching and create an engaging and enjoyable learning environment for early childhood. When students are given the opportunity to conduct science experiments, they will show interest in learning science (Nafiqoh & Wulansuci, 2020).

Based on the observation results, it is shown that students who are stimulated by active learning have better development of science knowledge because students are directly involved in learning through direct experience of objects, people, and events. Involving students directly makes them active in exploring and fostering curiosity so as to create an experience that can build students' knowledge.

Applying the active learning model will motivate students to play an active role in the learning process. In line with the results of Suarsih's research, students become more active, mobile, because through active learning it makes them excited, agile, fun, passionate and makes them free to think (Roza & Hartati, 2021).

The effect of *the active learning* model in improving class B science knowledge at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency

Based on the results of the study, the value of Sig. (2-tailed) is 0.304. In accordance with the basis for making decisions on the normality test, it can be concluded that the value of Asymp. Sig. (2-tailed) 0.304 > 0.05 with the conclusion that the data are normally distributed. Thus, the assumption of data normality test requirements is met.

The results of this study, when compared before and after conducting the active learning model, there was a positive influence on the development of science knowledge of class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency. This influence can be seen from the average value that has increased between the pretest score of 10.67 and the posttest value of

20.41 and by conducting a normality test and a t-test. The t-test value can be seen in table 4.11 of -10.299 with Sig. (2-tailed) of 0.000 so that the value of 0.000 < 0.05 which means that Ho is rejected and Ha is accepted. Therefore, there is a difference between the application of the active learning model to make soap bubbles resemble elephant trunks to the science knowledge of class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency. It was concluded that using the active learning model had an influence on students' science knowledge.

It is known that before being given treatment in the form of an active learning model, the level of science knowledge for the highest score obtained by students was 13 and the lowest score was 7, while after being treated in the form of an active learning model, the highest score obtained by students was 28 and the lowest score was 7.

Science learning can foster students' interest, give them the opportunity to try, and hone their problem-solving skills. Science skills that are properly and appropriately stimulated provide benefits for students. Science activities can improve children's cognitive development. It can indirectly improve students' senses when participating in activities or activities that aim to get to know science (Astuti & Nurhafizah, 2023).

Introducing science to early childhood is very supportive in using the active learning model. Through active learning strategies, it helps students not get bored easily and makes lessons easier to understand. Because learning is fun for them is an interesting process (Jf & Azmi, 2022).

A study conducted by Yuli Hafizah, Sri Hartati, and Saridewi found that active learning strategies, also known as active learning, help better learning because they utilize scientific thoughts and attitudes in activities and processes so that students gain their own understanding and knowledge. As stated that active learning strategies will involve students directly by supporting the constructivity of student knowledge (Jf & Azmi, 2022).

Active learning is very supportive in science learning. Science learning allows students to actively participate in observing things and making conclusions based on the results of their own thinking. According to the results of Fatimah's research in improving science skills, students are directly involved in building and creating their knowledge. They try to apply their knowledge to their own experiences, creating meaning from what they have learned. Therefore, the science process

gives students the opportunity to build their knowledge by using what they see and experience in real life (Yuli Hafizah, 2021).

Based on the above explanation, it can be seen that the active learning model can be used as an alternative to stimulate students' science knowledge. All students were given the opportunity to actively try to make soap bubble experiments resembling elephant trunks. So, by applying the active learning model, all students are actively involved in following the learning process. So, it can be concluded that the active learning model is influential in improving the science knowledge of class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency.

The explanation of the number of pretest and posttest students is known that out of 20 students in class B2, only 15 students took the pretest and 17 students took the posttest. This is because some students are in conditions that do not allow them to enter the classroom such as being sick and other things. In addition, the implementation of this research was carried out at a time when UAS activities had been carried out so that there were several students who were allowed not to enter the classroom.

During the study, the researcher found several obstacles, starting from the data collection stage, the obstacle that the researcher felt was in filling out the observation sheet because it was only assisted by one teacher so the researcher had to focus his observations on several students. Then at the data analysis stage, researchers are somewhat confused about analyzing the data because there is no prior knowledge in using the SPSS application so it takes a period of time to analyze it.

4). CONCLUSIONS.

Based on the results of the research entitled "The Effect of *the Active Learning Model* of the Elephant Proboscis Game Type in Increasing the Knowledge of Class B Students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency", the following conclusions can be drawn:

1. Increasing students' knowledge before applying the elephant trunk game-type *active learning* model to class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency, obtained the highest score of 13, the lowest score of 7, and the average score of 10.67.
2. The increase in students' knowledge after applying the elephant trunk game *type active learning* model to class B students at Kindergarten Negeri 16 Dharma Wanita Mandai, Maros Regency, has increased by obtaining the highest score of 28, the lowest score of 7, and the average score of 20.41.

3. The results of the study, when compared between before and after applying the *active learning* model, had a positive influence on the improvement of science knowledge of class B students at Kindergarten 16 Dharma Wanita Mandai, Maros Regency. This influence can be seen from the average score that has increased between *the pretest* score of 10.67 and *the posttest* score of 20.41. In addition, for the normality test value in the *pretest* data, the Asymp Sig. (2-tailed) *Shapiro Wilk value* was obtained at 0.064 > 0.05, and in the *posttest data,* the Asymp Sig. (2-tailed) value was obtained at 0.304 > 0.05 so that the data was normally distributed. Furthermore, the hypothesis test value uses *an independent t-test* with a calculated t-value of -10.299 and a significance value (2-tailed) of 0.000 < 0.05 so that it can be declared that Ho is rejected and Ha is accepted. It was concluded that *the elephant trunk game-type active learning* model had an influence in increasing students' science knowledge.

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