

THE INFLUENCE OF PROBLEM-BASED LEARNING MODELS ON CRITICAL THINKING SKILLS IN EARLY CHILDHOOD

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Article Info

Article History:

Received: April 2024

Revised: Mei 2024

Accepted: Juni 2024

Published: Juni 2024

Key Word: problem based learning models, critical thinking skills, early childhood

Abstract

The purpose of this study is to determine the effect of the problem-based learning model on the critical thinking abilities of children aged 5-6 years. This type of research uses quantitative with quasi- experimental research methods. Sampling in this study used purposive sampling with the number of samples in this study totaling 20 children and the data collection techniques used were observation and documentation. The data analysis technique used is the Wilcoxon signed rank test. This results of the research showed that the treatment scores using the problem-based learning model and the posttest were increased by 45% for children Developing According to Expectations (DAE) compared to before using the problem-based learning model. The results of the pretest for critical thinking abilities of children who were Beginning to Develop (BD) were 35%. Then the final result of the total number of children's *pretest* and *posttest* is at the Very Well Developing (VWD) stage of 80%. This shows that there is an influence from using the problem-based learning model on the critical thinking abilities of children aged 5-6 years

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Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh model pembelajaran berbasis masalah terhadap kemampuan berpikir kritis anak usia 5-6 tahun. Jenis penelitian menggunakan kuantitatif dengan metode penelitian *quasi experiment*. Pengambilan sampel dalam penelitian ini menggunakan *purposive sampling* dengan jumlah sampel pada penelitian ini berjumlah 20 anak dan teknik pengumpulan data yang digunakan adalah observasi dan dokumentasi. Teknik analisis data yang digunakan adalah uji *Wilcoxon signed rank test*. Hasil penelitian menunjukkan bahwa nilai treatment dengan model pembelajaran berbasis masalah dan dilakukan *posttest* ada kenaikan sebesar 45% anak berkembang sesuai harapan (BSH) dibandingkan sebelum menggunakan model pembelajaran berbasis masalah hasil dari *pretest* kemampuan berpikir kritis anak yang Mulai Berkembang (MB) sebesar 35%, maka hasil akhir anak dari jumlah *pretest* dan *posttest* berada pada tahap Berkembang Sangat Baik (BSB) sebesar 80%. Hal itu menunjukkan bahwa ada pengaruh dari penggunaan model pembelajaran berbasis masalah terhadap kemampuan berpikir kritis anak usia 5-6 tahun.

Kata Kunci: Model Pembelajaran Berbasis Masalah, Kemampuan Berpikir Kritis, Anak Usia Dini

Introduction

Cognitive development is a development that is comprehensive and involves many processes in thinking. Optimal cognitive development from an early age can benefit children because it is related to their ability to think and solve problems. One part of high-level early childhood cognitive abilities is the ability to think critically. The scope of the development of children's critical thinking can be seen from new things that appear in the surrounding environment. Critical thinking is part of cognitive abilities that can be developed early on. Critical thinking in early childhood

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DOI <https://doi.org/10.32332/ijigaed.v4i2.9420>

is one of the basic skills that can help children in knowing themselves and their environment, as well as developing the ability to solve problems.

Critical thinking can be developed through dialogues that contain in-depth questions related to a particular object or problem (Cáceres et al., 2020). Critical thinking skills are classified as high-order thinking skills (HOTS). Teachers often think that HOTS can only be trained at a higher age. So at an early age, teachers teach and inform children more in the realm of knowledge, remembering, understanding, and applying which is the realm of lower stage thinking skills (LOTS). Whereas HOTS can be trained as early as possible by adjusting the level of understanding and cognitive development of early childhood. When children are able to analyse what they see and evaluate the information obtained, it will make it easier for children to make decisions and conclude about the learning they are doing (Fitriani & Vinayastri, 2022; Ayuningrum & Nopiana, 2019).

Children can be said to develop in critical thinking skills if they are able to achieve child development tasks in cognitive aspects related to critical thinking skills. Regulation of the Minister of Education and Culture No.137 of 2014 concerning National Standards for Early Childhood Education states that the developmental achievement levels of children aged 5-6 years related to critical thinking are showing exploratory and investigative activities, solving simple problems in everyday life, identifying causes and effects about their environment. This falls into two scopes of cognitive development, namely the scope of learning development and problem solving and logical thinking (Mulyadi et al., 2021). Critical thinking skills are the ability to think reflectively in making decisions (Handayani & Sinaga, 2022). critical thinking skills are important in educating children by involving the process of teaching them to communicate their thoughts clearly, solve problems with a systematic approach, and sort out the information received carefully (Yunita et al., 2019).

The development of critical thinking is important in the world of early childhood education. The ability to think critically develops children's thinking skills in various ways, helps children make the right decisions based on facts, and considers various points of view in making decisions. In addition, critical thinking makes children able to choose good information. Children who think critically are able to determine attitudes in action, process information, reason, solve problems, and make decisions. Children who are accustomed to critical thinking will become independent, resilient, disciplined, and responsible for their own decisions and not easily believe in other people's opinions. Critical thinking is a very important skill to have in the 21st century. Early childhood needs to be equipped with critical thinking skills starting from the level of education in kindergarten. This is not only to prepare children to enter the next level, but also to start shaping children's abilities so that they are able to compete and survive in facing the challenges of the times in the 21st

century. The impact of children who do not have critical thinking skills will be academically difficult, especially in various things such as making decisions, selecting information, determining attitudes in action, solving problems and reasoning. To address these issues, it is necessary to stimulate the development of critical thinking skills so that children can be active in learning activities.

Based on pre-research through observations conducted at Al-Huda Kindergarten with 20 children in 1 class. It was found that children's critical thinking skills had not been well stimulated, this was seen when the learning activities carried out were still teacher-centred, using the lecture method in classroom learning so that children were less actively involved in every learning activity. This is evidenced when the teacher explains the Pancasila material, children only listen so that children do not pay attention to the explanation but are busy chatting with their friends. When the teacher asks questions and answers and asks children to retell about Pancasila, only a few children can answer the teacher's questions correctly, children are not brave enough to express their opinions and answer questions. In addition, Al-Huda Kindergarten has not implemented a problem-based learning model in classroom learning. Referring to the problems found during the pre-research, the researcher saw that there were problems that occurred at Al-Huda Kindergarten, namely the learning methods used had not been able to develop children's critical thinking skills. Children's critical thinking skills are important to develop in early childhood, in line with that in research (Andriyansah, 2018) discusses the process of implementing science learning through an inquiry approach in improving children's critical thinking skills, in this study children's critical thinking skills or children's cognitive development are still low as seen in children who are still silent, talking to their friends, children who are less focused and feel bored because the approach used is still teacher centre.

In research (Wulandari & Suparno, 2020) which discusses the use of STEAM-based learning methods and loosepart to increase creativity and critical thinking in children, in this study the lack of teacher creativity and educational game tools that are less supportive, so that the learning process does not encourage children's ability to think at a high level. In Wijayanti's research which discusses the effect of the project-based learning model on the critical thinking skills of children aged 5-6 years at Dharma Wanita Sungai Liuk Kindergarten, Pesisir Bukit sub-district, in this study children still have difficulty in doing something related to critical thinking skills, it can be seen in the activity that children have not been able to ask exploratory questions and children's curiosity is still low (Wijayanti, 2023). Based on some of the above research that has been done before, researchers conduct research at different age ranges, namely 5-6 years. Previous researchers discussed critical thinking skills using science learning, while this researcher wants to see the effect of problem-based learning models on critical thinking skills in early

childhood. Indicators in previous studies are different from the research to be conducted.

Researchers also conducted research in locations where there had never been related research before. The importance of using problem learning models is used as a solution because it can develop children's thinking skills and abilities, using problem-based learning models is expected to stimulate critical thinking skills. One model that can be used to overcome these problems is the problem-based learning model. It is hoped that using this problem-based learning model can develop children's critical thinking skills. Problem-based learning model is a learning model with an active learning approach in solving problems that exist in everyday life in classroom learning. The main characteristic of the problem-based learning model is that learning is centred on students while the teacher is only a facilitator and guide. It can be concluded that the problem-based learning model is a model in developing children's thinking skills contextually in the form of experiences in everyday life which aims to develop children's mindset in solving a problem efficiently, contextually, and integrated. Therefore, in this study, researchers are interested in knowing the effect of problem-based learning models on the critical thinking skills of early childhood in Al-Huda Kindergarten Bandar Lampung.

Method

The type of research used in this study is a type of experimental quantitative research in the form of a quasi experiment. The design in this study used a one group pretest-posttest design (Arikunto, 2014). The location of this research was conducted at Al-Huda Sumberejo Kindergarten, Kemiling, Bandar Lampung City. The research subjects were kindergarten children aged 5-6 years. The sample in this study used group B2 totalling 20 children. Data collection tools in this study are observation sheets and documentation. Data analysis techniques using table analysis and hypothesis test analysis. Table analysis using the interval formula and hypothesis test analysis using the wilcoxon signed rank test formula (Sugiyono, 2015).

Results and Discussions

The data in this study includes data on 2 variables, namely variable X problem-based learning model and variable Y critical thinking skills. Research data is obtained through observations made when children are in class. This observation aims to determine the effect of problem-based learning models on critical thinking skills in early childhood. Observations were carried out for 15 meetings with a division of 5 meetings before using problem-based learning models, 5 treatment

meetings using problem-based learning models, and 5 meetings after using problem-based learning models.

In this case, researchers use observation sheets to measure the ability of each child. The critical thinking ability data assessed includes the ability to observe, reason and draw conclusions and the problem-based learning model data assessed includes forming groups by discussing problems, trying to understand the problem, reporting results, reviewing and formulating answers. Pretest of problem-based learning model and critical thinking skills of early childhood. Pretest before using a problem-based learning model the results of observations obtained by researchers for 5 meetings with a total of 20 children are categorised into 4 categories, namely Not Developing (BB), Starting to Develop (MB), Developing As Expected (BSH), and Developing Very Well (BSB). Data is obtained using the interval formula with the highest value of 20 and the lowest value of 12. The calculation is as follows:

$$i = \frac{NT-NR}{K} = \frac{20-12}{4} = \frac{8}{4} = 2$$

The results showed that most of the variables of the use of problem-based learning models were in the category of starting to develop. These results can be seen in the following table.

Table 1. Pretest Results of Problem-Based Learning for 5-6 Year Old Children

No	Kategori	Interval	Frekuensi	Persentase (%)
1	BSB	≥18	2	10
2	BSH	16-17	4	20
3	MB	14-15	9	45
4	BB	12-13	5	25
Jumlah			20	100

Sumber: Hasil pengolahan data 2023

Keterangan :

BSB = Berkembang Sangat Baik

BSH = Berkembang Sesuai Harapan

MB = Mulai Berkembang

BB = Belum Berkembang

Based on the results of categorising before the use of problem-based learning models, it shows that in the category of Developing Very Well (BSB) there are 2 children (10%), Developing As Expected (BSH) there are 4 children (20%), Starting to Develop (MB) there are 9 children (45%), and Not Developing (BB) there are 5 children (25%). Based on the data obtained from the pretest above, the highest frequency in the pretest lies in the interval class 14-15, namely 9 children (45%). It

can be concluded that the pretest results before using the problem-based learning model are in the category of starting to develop (MB). The higher the interval class the more developed the child's critical thinking ability in the problem-based learning model, children with higher interval classes show better ability in forming groups, conducting activities to understand the problem, describing research results, discussing activity results, and reviewing answers without teacher assistance.

Pretest of critical thinking skills The results of observations obtained by researchers during 5 meetings with a total of 20 children are categorised into 4 categories, namely Not Developing (BB), Starting to Develop (MB), Developing As Expected (BSH), and Developing Very Well (BSB). Data is obtained using the interval formula with the highest value of 26 and the lowest value of 14. The calculation is as follows: $i = \frac{NT-NR}{K} = \frac{26-14}{4} = \frac{12}{4} = 3$ The results showed that most of the critical thinking ability variables were in the beginning to develop category. These results can be seen in the following table:

Tabel 2. Results of Problem-Based Learning Model Treatment for 5-6 Year Old Children

No	Kategori	Interval	Frekuensi	Persentase (%)
1	BSB	≥23	2	10
2	BSH	20-22	5	25
3	MB	17-19	7	35
4	BB	14-16	6	30
Jumlah			20	100

Sumber: Hasil pengolahan data 2023

Keterangan :

BSB = Berkembang Sangat Baik

BSH = Berkembang Sesuai Harapan

MB = Mulai Berkembang

BB = Belum Berkembang

Based on the results of the pretest categorisation of critical thinking skills, it shows that in the category of Developing Very Well (BSB) there are 2 children (10%), Developing As Expected (BSH) there are 5 children (25%), Starting to Develop (MB) there are 7 children (35%), and Not Developing (BB) there are 6 children (30%). Based on the data obtained from the pretest above, the highest frequency in the pretest lies in the interval class 17-19, namely 7 children (35%). It can be concluded that the pretest results of critical thinking skills in children are in the category of starting to develop (MB). It can be seen that the higher the interval class, the more children's critical thinking skills increase in asking questions, finding problems, answering questions, comparing learning processes, expressing causes

and effects, expressing opinions, and telling the results of learning, children in higher interval classes show better abilities, even without teacher assistance, while in lower intervals teacher assistance is still needed in several aspects of critical thinking.

Posttest of problem-based learning models and critical thinking skills of early childhood. Posttest after using a problem-based learning model The results of observations obtained by researchers during 5 meetings with a total of 20 children are categorised into 4 categories, namely Not Developing (BB), Starting to Develop (MB), Developing As Expected (BSH), and Developing Very Well (BSB). Data is obtained using the interval formula with the highest value of 32 and the lowest value of 25. The calculation is as follows:

$$i = \frac{NT - NR}{K} = \frac{32 - 25}{4} = \frac{7}{4} = 1,75$$

The results showed that most of the variables of the use of problem-based learning models were in the category of developing as expected. These results can be seen in the following table:

Tabel 3. Results of Problem-Based Learning Posttest for 5- 6 Year Old Children

No	Kategori	Interval	Frekuensi	Persentase (%)
1	BSB	31-32	7	35
2	BSH	29-30	8	40
3	MB	27-28	4	20
4	BB	25-26	1	5
Jumlah			20	100

Sumber: Hasil pengolahan data 2023

Keterangan :

BSB = Berkembang Sangat Baik

BSH = Berkembang Sesuai Harapan

MB = Mulai Berkembang

BB = Belum Berkembang

Based on the results of categorising after the use of problem-based learning models, it shows that in the category of Developing Very Well (BSB) there are 7 children (35%), Developing As Expected (BSH) there are 8 children (40%), Starting to Develop (MB) there are 4 children (20%), and Not Developing (BB) there are 1 child (5%). Based on the data obtained from the posttest above, the highest frequency in the posttest lies in the interval class 29-30, namely 8 children (40%). It can be concluded that the posttest results after using the problem-based learning model are in the Developing As Expected (BSH) category. It can be seen that the

higher the interval class, the more children's critical thinking skills improve in the problem-based learning model, in higher interval classes children show better ability to form groups, carry out activities to understand the problem, describe research results, discuss activity results, and review answers without or with teacher assistance. As the interval class increases, the development of children's critical thinking skills in applying the problem-based learning model is seen.

Posttest critical thinking skills observation results obtained by researchers during 5 meetings with a total of 20 children are categorised into 4 categories, namely Not Developing (BB), Starting to Develop (MB), Developing As Expected (BSH), and Developing Very Well (BSB). Data is obtained using the interval formula with the highest value of 47 and the lowest value of 37. The calculation is as follows:

$$i = \frac{NT - NR}{K} = \frac{47 - 37}{4} = \frac{10}{4} = 2,5$$

The results showed that most of the critical thinking ability variables were in the developing as expected category. These results can be seen in the following table:

Tabel 4. Posttest Results of Critical Thinking Ability of 5-6 Year Old Children

No	Kategori	Interval	Frekuensi	Persentase (%)
1	BSB	46-48	7	35
2	BSH	43-45	9	45
3	MB	40-42	3	15
4	BB	37-39	1	5
Jumlah			20	100

Sumber: Hasil pengolahan data 2023

Keterangan :

BSB = Berkembang Sangat Baik

BSH = Berkembang Sesuai Harapan

MB = Mulai Berkembang

BB = Belum Berkembang

Based on the results of the posttest categorisation of critical thinking skills, it shows that in the category of Developing Very Well (BSB) there are 7 children (35%), Developing As Expected (BSH) there are 9 children (45%), Starting to Develop (MB) there are 3 children (15%), and Not Developing (BB) there are 1 child (5%). Based on the data obtained from the posttest above, the highest frequency in the posttest lies in the interval class 43-45, namely 9 children (45%). It can be concluded that the posttest results of critical thinking skills are in the Developing As Expected (BSH) category.

From the pretest results of children's critical thinking skills that Begin to Develop (MB) by 35% and then given treatment and carried out a posttest there was

an increase of 45%, so the final results of children from the number of pretests and posttests were at the Very Good Developing (BSB) stage by 80%. It can be seen that the higher the interval class, the more children's critical thinking skills increase in asking questions, finding problems, answering questions, comparing learning processes, expressing cause and effect, expressing opinions, and telling the results of learning, children with higher interval classes show better abilities, either with or without teacher assistance. This shows the development of children's critical thinking skills along with the increase in interval classes in the problem-based learning model. Hypothesis testing is used to determine the effect of activities that use problem-based learning models. In this study, the Wilcoxon signed rank test was used as a tool to test the hypothesis. According to Muncarno, the wilcoxon signed rank test is a non-parametric test used to analyse paired data due to two different treatments (Sugiyono, 2013).

The basis for decision making to accept or reject H_0 in the Wilcoxon signed rank test is as follows: If the probability (Asymp.Sig) < 0.05 then H_0 is rejected and H_a is accepted If the probability (Asymp.Sig) > 0.05 then H_0 is accepted and H_a is rejected The following are the results of the Wilcoxon test analysis can be seen in the attachment using SPSS the calculation results show that the negative rank or difference in the critical thinking ability of children aged 5-6 years using a problem-based learning model for pretest and posttest is 0. This value of 0 indicates no decrease from pretest and posttest. Positive rank or the difference (positive) between the critical thinking skills of children aged 5-6 years using a problem-based learning model for pretest and posttest, amounting to 20 positive data (N) which means that 20 children experience positive changes in children's critical thinking skills by using a problem-based learning model regularly for 5 days. While the mean rank or average increase is 10.50. Based on the statistical test table, it is known that the asymp.sig is 0.000 < 0.05 , it can be concluded that H_0 is rejected and H_a is accepted. This means that there is an effect of using a problem-based learning model on the critical thinking skills of children aged 5-6 years..

Discussion

Based on the results of the study, it can be seen that the use of problem-based learning models can affect children's critical thinking skills. This is due to the difference in children's critical thinking skills before and after treatment using problem-based learning models. At the time of treatment, children were enthusiastic in carrying out experiments because the steps of the problem-based learning model had not been used by teachers in the classroom. Through the steps of the problem-based learning model managed to attract children's attention by using experimental treatment in groups to solve a problem, children are interested in solving problems that occur in experimental activities in groups. This is inseparable from the role of media to stimulate child development. Indeed, children will easily develop with the presence of concrete objects around them. In this case, teachers can optimise children's abilities, especially children's critical thinking skills to solve simple problems by using the steps of a problem-based learning model

using concrete media. Efforts made in developing critical thinking skills include using learning models that can stimulate these abilities.

Problem-based learning model is a learning model with authentic assessment (concrete or real understanding). The application in this learning model is done comprehensively, this is done because in the learning process it solves problems and resolves them (Poerwati et al., 2022). Therefore, the learning model has an important role in successfully stimulating to optimise children's development. Then the results of the analysis on the dimension of observing the learning process by seeing or hearing to pay attention and understand learning activities, namely previously the child had not been able to respond appropriately to the teacher's questions. However, after being given treatment or using the steps of the problem-based learning model, children's critical thinking skills develop well. This can be proven during learning activities, children are able to find and solve problems given by the teacher appropriately, children can understand the instructions given by the teacher, children can discuss together in groups and children can find out in experimental activities (Alrahlah, 2016). According to Hartati and Sholihin in (Nugraha, 2018), states that the key variables in problem-based learning are problems and information obtained. So, the problem-based learning model uses contextual problems to provide stimuli to children to arouse children's curiosity, so that children are more motivated to seek information to solve the problem.

The process of searching for information in order to solve this problem will help children build their knowledge while developing children's critical thinking skills. Leicester and Taylor suggest several aspects that can be developed in accordance with the components of critical thinking, namely asking questions, point of view, rational, finding out and analysis (Imamah & Muqowim, 2020; Suryadi & Nopiana, 2018). It can be said that the existence of critical thinking components in children can educate children to communicate their thoughts, solve problems, be able to sort out the information received, so that children can become conscientious, unyielding and responsible individuals. Therefore, teachers must prepare and choose a model that can optimise children's development. Furthermore, the results of the analysis of reasoning to know and understand the learning process carried out and draw conclusions, namely there is development from before being treated and has been treated using the problem-based learning model steps. The ability to reason is seen when learning activities in the classroom, children can answer questions from the teacher appropriately, children are able to distinguish before and after the experiment, children are able to express cause and effect in experimental learning activities, children can express opinions to the teacher and children can tell the results of experimental activities appropriately.

The development of critical thinking skills when children are able to analyse what they see and evaluate the information obtained will make it easier for children to make decisions and conclude about the learning they are doing. The development of children aged 5-6 years related to critical thinking is to show exploratory and investigative activities, solve simple problems in everyday life, identify causes and effects about their environment (Permendikbud No. 137 of 2014). Children can be said to develop in critical thinking skills if they are able to achieve child development tasks in cognitive aspects related to critical thinking skills. Critical thinking is part of cognitive abilities that can be developed early on. Critical thinking in early childhood is one of the basic skills that can help children in knowing themselves and their environment, as well as developing the ability to solve problems. Critical thinking can be developed through dialogues that contain in-depth questions related to a particular object or problem (Anggraini et al., 2020).

It can be said that dialogues containing in-depth questions can be an effective means of developing critical thinking skills. The dialogue process that encourages in-depth reflection and analysis helps children develop the ability to understand, assess and conclude critically related to objects and problems, thus enabling them to train in critical thinking skills actively in the context of learning. Basically, every child is capable of thinking, but to think critically requires an appropriate learning model to stimulate it. Based on the results of research conducted by (Wulandari & Suparno, 2020) which discusses the use of STEAM and loosepart-based learning methods to increase creativity and critical thinking in children, in this study the lack of teacher creativity and educational game tools that are less supportive, so that the learning process does not encourage children's ability to think at a high level. In Wulandari's research, learning with a problem-based learning model is learning that can improve the character of cooperation in children because this learning is not only child-centred but also creates involvement and mutual assistance in solving problems faced in the group.

The learning process with the problem-based learning method will involve the active role of children. In Wijayanti's research which discusses the effect of the project-based learning model on the critical thinking skills of children aged 5-6 years at Dharma Wanita Sungai Liuk Kindergarten, Pesisir Bukit sub-district, in this study children still have difficulty in doing something related to critical thinking skills seen in the ongoing activities of children have not been able to ask exploratory questions and children's curiosity is still low (Wijayanti, 2023). In the results of Wijayanti's research, the PJBL model can improve the critical thinking skills of early childhood compared to conventional learning showing significant differences. With the PJBL model, it gives an independent impression to children, because it focuses on cognitive, affective, and psychomotor aspects in a balanced manner. This model also provides a meaningful experience because the activity is fully centred on the

learner, while the teacher is only a facilitator. From the results of the study, it can be seen that problem-based learning models can not only improve thinking skills but can improve other aspects such as increasing children's cooperation and varied models such as the PjBl model can also improve the critical thinking skills of early childhood. Based on several previous studies, researchers conducted different studies, namely covering variations in the methodology used, variables measured, different age ranges, where the research was conducted and the research implementation approach.

Critical thinking skills are part of cognitive abilities that can be developed from an early age, critical thinking in early childhood is a basic skill that can help children in knowing themselves and their environment, and develop the ability to solve problems. The emergence of critical thinking skills in children is influenced by several factors, namely internal factors and external factors. Teachers as one of the external factors are human figures who occupy a position and play a major role in the overall educational process because the teaching and learning process contains a series between teachers and students there is a reciprocal relationship that takes place in a learning atmosphere. Learning is not only by watching, listening, seeing, memorising, or doing assignments. However, learning by developing one's potential through reasoning, trying, communication, and problem solving (Budikasi et al., 2020).

It can be said that teachers play an important role in shaping children's critical thinking skills. By creating a learning atmosphere that encourages reasoning, experimentation, communication, problem solving, teachers can make a positive contribution to the development of children's critical thinking. External and internal factors, including teacher influence, can significantly shape children's critical thinking and skills in the learning process. Teachers can stimulate critical thinking skills in early childhood by incorporating strategies such as choosing the right learning method, by providing the right method children can be stimulated properly. The application of the right model in learning is one way to help children stimulate children's critical thinking skills. The characteristics of problem-based learning consist of a series of learning activities that emphasise the problem as the main key, problem solving uses a scientific approach and there is cooperation carried out in solving the problem, while the teacher only acts as a facilitator who provides various things needed in the learning process that occurs.

Problem-based learning model is a learning model with authentic assessment (concrete or real understanding). The application in this learning model is carried out comprehensively, this is done because in the learning process it solves problems and solves them (Poerwati et al., 2022). Early childhood problem solving will be seen from several indicators such as a very high curiosity about an event, when seeing something different the sense of exploration of the object will increase

significantly, then the child will be able to find solutions to the problems he receives, and can provide cause and effect conclusions from a series of observations he has made. The Problem-Based Learning Model is a learning model with an active learning approach in solving problems that exist in everyday life in classroom learning. The characteristics of problem-based learning consist of a series of learning activities that emphasise the problem as the main key, problem solving uses a scientific approach and there is cooperation carried out in solving problems (Nugraha & Sari, 2019). The main characteristic of the problem-based learning model is that learning is centred on students while the teacher is only a facilitator and guide. Basically, a model will function well if it is adjusted to the characteristics of children.

Conclusion

Based on the results of the study, it can be concluded that the use of a problem-based learning model at Al-Huda Sumberejo Kindergarten, Kemiling has a positive influence on the critical thinking skills of children aged 5-6 years. There was a significant increase of 45% from the beginning to the end of the study, with most children reaching the Very Good Developing (BSB) level in critical thinking skills seen from the results of the five treatments with the theme of the natural environment with the sub-theme of running water, soluble and insoluble, floating sinking, rain, and flooding experienced a significant increase seen in the increase in indicators of children being able to ask questions, find problems, answer questions, compare, express, convey opinions on the learning process, and tell the results of learning. Data analysis and hypothesis testing using the Wilcoxon signed rank test support the conclusion that activities using a problem-based learning model have a positive impact on children's critical thinking skills at Al-Huda Kemiling Kindergarten, Bandar Lampung City..

Reference

- Adiga, U., & Adiga, S. (2015). *Problem Based Learning. International Journal of Current Research*, 7(6).
- Alrahlah, A. (2016). *How Effective the Problem-Based Learning (PBL) in Dental Education . A Critical Review. The Saudi Dental Journal*, 28(4), 155–161. <https://doi.org/10.1016/j.sdentj.2016.08.003>
- Andriyansah. (2018). Peningkatan Kemampuan Berpikir Kritis Dalam Pembelajaran Sains Melalui Pendekatan *Inquiry. Jurnal Tunas Siliwangi*, 4(2), 60–70. <http://www.e-journal.stkipsiliwangi.ac.id/index.php/tunas-siliwangi/article/view/1226>
- Anggraini, G. F., Pradini, S., Sasmiati, Haenilah, E. Y., & Wijayanti, D. K. (2020). Pengembangan Kemampuan Berpikir Kritis Anak Usia Dini Melalui *Storytelling* Di Tk Amartani Bandar Lampung. *Jurnal Pengabdian Dharma Wacana*, 1(1), 15–

25. <https://doi.org/10.37295/jpdw.v1i1.21>
- Arikunto, Suharsimi. (2014). *Prosedur Penelitian: Suatu Pendekatan Praktik*. Bandung: Rineka Cipta.
- Ayuningrum, D., & Nopiana. (2019). Early Childhood Education Management. *The First International Conference on Islamic Development Studies 2019, ICIDS 2019, 10 September 2019, Bandar Lampung, Indonesia*. <https://doi.org/http://doi.10.4108/eai.10-9-2019.2289375>
- Bokings, K. E. (2013). Pengaruh Model *Problem Based Learning* Terhadap Kemampuan Pemecahan Masalah Matematis Siswa Pada Materi Lingkaran Di SMP Negeri 1 Kabila.
- Budikasi, L., Isa, A. H., & Ardini, P. P. (2020). Faktor-Faktor Yang Berperan Dalam Kemampuan Berpikir Kritis Anak Kelompok B TK Sandhy Putra Kota Gorontalo. *Suparyanto Dan Rosad*, 5(3), 248–253.
- Fitriani, S. S. A., & Vinayastri, A. (2022). Pengembangan Instrumen Kemampuan Berpikir Kritis Anak Usia Dini. *Pendidikan Anak Usia Dini*, 8, 21–36.
- Handayani, A., & Sinaga, S. I. (2022). Penerapan Model *Project Based Learning* Dalam Meningkatkan Kemampuan Berpikir Kritis Anak Usia Dini. *Journal Of Early Childhood Education*, 5(October), 146–155. <https://doi.org/10.31849/Paud-Lectura.V>
- Imamah, Z., & Muqowim. (2020). Pengembangan Kreativitas dan Berpikir Kritis Pada Anak Usia Dini Melalui Metode Pembelajaran Berbasis STEAM *and Loose Part*. *Jurnal Studi Islam, Gender, dan Anak*, 15(2).
- Mulyadi, O. W., Mahfud, H., & Pudyaningstiyas, A. R. (2021). Meningkatkan Kemampuan Berpikir Kritis Anak Usia 5-6 Tahun Melalui Metode *Guided Discovery* Dalam Pembelajaran Sains. *Jurnal Kumara Cendekia*, Vol. 9(1).
- Nugraha, V., & Sari, H. N. (2019). Penggunaan Metode Pembelajaran Berbasis Masalah. *Semantik*, 8(1). <https://doi.org/10.22460/Semantik.Vxix.XXX>
- Nugraha, W. S. (2018). Peningkatan Kemampuan Berpikir Kritis Dan Penguasaan Konsep IPA Siswa SD Dengan Menggunakan Model *Problem Based Learning*. *Jurnal Pendidikan Dasar*, 10(2), 115–127.
- Nugroho, P. B. (2015). *Scaffolding* Meningkatkan Kemampuan Berpikir Kritis Dalam Pembelajaran Matematika. *Jurnal Silogisme: Kajian ilmu matematika dan Pembelajarannya*, 2(1). <https://journal.umpo.ac.id/index.php/silogisme/article/view/500>
- Poerwati, C. E., Cahaya, I. M. E., & Suryaningsih, N. M. A. (2022). Pengaruh Model Pembelajaran *Problem Based Learning* Berbasis Eksperimen Sederhana Dalam Pengenalan Sains Anak Usia Dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(3), 1472–1479. <https://doi.org/10.31004/Obsesi.V6i3.1233>
- Sugiyono. (2015). *Metode Penelitian Pendidikan. Pendekatan Kuantitatif, Kualitatif, Dan R&D*. Bandung: Alfabeta
- Suryadi, & Nopiana. (2018). Pengaruh Media Pembelajaran dan Kemandirian Belajar Terhadap Kemampuan Matematika. *Jurnal Pendidikan Sekolah Dasar*, 2(1), 29–42. <https://doi.org/https://doi.org/10.31326/jipgsd.v2i01.115>
- Syamsidah, & Suryani, H. (2018). *Buku Model Problem Based Learning (PBL)*.
- Wijayanti, T. M. (2023). Pengaruh Model *Project Based Learning* Terhadap Kemampuan Berpikir Kritis Anak Usia 5-6 Tahun Di Tk Dharma Wanita Sungai Liuk Kecamatan Pesisir Bukit.

- Wulandari, A., & Suparno. (2020). Pendidikan Anak Usia Dini Pengaruh Model *Problem Based Learning* Terhadap Kemampuan Karakter Kerjasama Anak Usia Dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 4(2), 862–872. <https://doi.org/10.31004/obsesi.v4i2.448>
- Yunita, H., Meilanie, S. M., & Fahrurrozi. (2019). Meningkatkan Kemampuan Berpikir Kritis Melalui Pendekatan Saintifik. *Jurnal Pendidikan Anak Usia Dini*, 3(2), 425–432. <https://doi.org/10.31004/obsesi.v3i2.228>
- Zahriani, N. (2018). Implementasi Model Problem Based Learning Dalam Pembelajaran Sains Anak Usia Dini di Taman Kanak-Kanak (TK). *Islamic Early Childhood Education*, 3.