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# The contribution of science learning to the formation of positive emotions in early childhood

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**Abstract**

**Science learning has a very important role in early childhood development, because it can help them explore the contribution of science to the formation of positive emotions. This can be seen from the emotions of children in group A at KB Lab PAUD Terpadu Tunas Siliwangi, who have not been able to express their emotions naturally. Therefore, this study aims to develop positive emotions in children through the application of science learning. The method used in this research is descriptive qualitative, which includes direct observation and interviews. The research was conducted for eight meetings, involving eight children as subjects, consisting of four boys and four girls. Data analysis was conducted through data reduction, data presentation, and conclusion drawing. At the initial meeting, it was seen that the children began to show emotional development. However, after eight meetings, the results showed that science learning significantly increased children's curiosity, excitement and satisfaction. This contributed positively to their emotional development, creating a more supportive learning environment.**



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# INTRODUCTION

Science learning is an important component of early childhood education. At this stage, children are in a crucial phase of development, where they begin to develop cognitive, social and emotional skills. Through science learning that is done in an interesting and interactive way, children not only learn about basic concepts about the environment, but also experience the formation of positive emotions that can have a long-term impact on their development (Shofia and Dirgayunita, 2024).

Based on Chasanah and Khotimah, (2024) children are naturally curious and explorative. They always ask about phenomena that occur around them, such as why the sky is blue or how plants grow. This curiosity is the initial foundation for science learning (Rahmadhar and Meilana, 2022). When children are given the opportunity to answer these questions through science activities, they feel engaged and motivated. This creates a fun atmosphere and triggers positive emotions, (Ariani, 2019) such as a sense of satisfaction and pride when they find answers to their own questions.

Based on research conducted by Prasetyo (2017) effective science learning at an early age is also able to stimulate children's self-confidence. When children are involved in experiments or practical activities, they get the opportunity to take risks in a safe environment. Success in completing such tasks gives them a deep sense of accomplishment, which in turn boosts their self-confidence. This confidence is very important, as children who feel confident tend to be more open to new experiences and challenges.

In addition, science learning can encourage the development of good social skills (Sa'diyah, et al., 2023). In many science activities, children often work in groups, collaborate to solve problems or conduct experiments together. These interactions teach children the importance of cooperation, communication and empathy. As they share ideas and support each other, children learn how to value others' opinions and develop positive social relationships. This contributes to the reinforcement of positive emotions, such as a sense of community and friendship.

Furthermore, science learning can introduce children to the concept of responsibility (Nisfa and Putri, 2022). When they are given tasks or experiments to manage, they learn to be responsible for the outcome of what they do. This learning teaches them that effort and perseverance in carrying out tasks will lead to satisfactory results. This experience is invaluable in shaping children's character and instilling positive values that will be useful in their future lives.

However, to maximize the contribution of science learning to the formation of positive emotions, the right approach is needed. An interactive approach, where children are encouraged to ask questions, experiment and observe, is very effective in creating a fun learning atmosphere (Khusniyah, 2024). Teachers or educators need to act as facilitators who are able to create an environment that supports exploration. This includes providing a variety of tools and resources that allow children to learn independently and in groups.

The use of play methods in science learning is also highly recommended (Izzuddin, 2019). This method not only makes learning more interesting, but also reduces the pressure children may feel while learning. In a playful atmosphere, children tend to express themselves more freely and are not afraid to make mistakes. They learn from experience and interaction with their friends, which can reinforce the positive emotions they feel.

Based on the description above, the purpose of this science learning is to see the contribution to the formation of positive emotions in group A children at Kb Lab PAUD Terpadu Tunas Siliwangi, so that children can have a fun and interactive learning experience, children not only gain scientific knowledge, but also develop self-confidence, social skills, and a sense of responsibility. Therefore, it is important for educators to create an environment that supports fun and rewarding science learning. In this way, we can help children grow into individuals who are not only academically intelligent, but also have strong positive emotions and good social skill.

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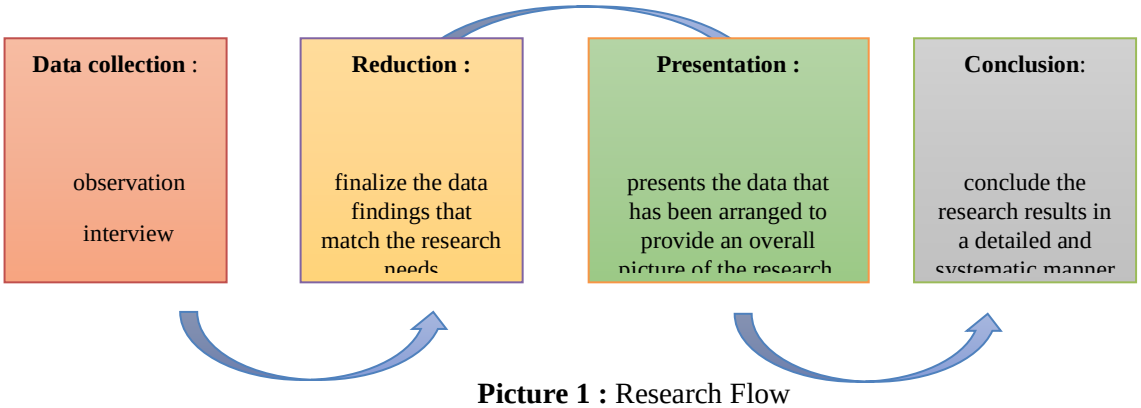
# METHOD

This type of research uses a descriptive method using a qualitative approach. This method is research that aims to describe and analyze a situation accurately (Sugiyono, 2015). This research was conducted on group A children at Kb Lab PAUD Terpadu Tunas Siliwangi with a total of eight children, consisting of four boys and four girls. Therefore, this research method is to analyze the contribution of science learning to the formation of positive emotions in children directly in order to obtain data according to facts and accurately.

Data collection techniques using: 1) observation was conducted to observe the process of implementing science learning at KB Lab PAUD Terpadu Tunas Siliwangi; 2) Interviews were conducted to find out in depth about the implementation of science learning. Interviews were conducted with group A teachers; 3) Documentation is used by researchers to collect data such as photos of children's activities.

By the opinion of Laila, et al., (2022) that data analysis in research is data and helps solve problems. Researchers analyzed qualitative data which was carried out through three stages, namely data reduction, data presentation and data withdrawal to facilitate researchers in drawing conclusions. Can be seen in the picture below:




**Picture 1 :** Research Flow

# RESULTS AND DISCUSSION

## Result

Based on information obtained from the results of direct observation observations in the presence of science, learning can foster a contribution to the emotion of positive attitude formation of group A children at KB Lab PAUD Terpadu Tunas Siliwangi. Based on observations at the first meeting, the initial value obtained from the eight children observed was one person who reached the value of Developing As Expected (BSH) and seven people who reached the value of Starting to Develop (MB). As for the results of observations made by researchers during eight meetings, the aim is to find out about the contribution of the formation of children's positive emotions through science learning. The indicators used in the discipline character include: 1) curiosity; 2) self-confidence; 3) social skills; 4) character development; 5) encouraging independence; and 6) connection with nature.

Based on the results of interviews conducted on Monday, October 21, 2024 precisely at 08.00 - 08.30 with group A teachers, how to increase the contribution in the formation of positive emotions of children can develop well, namely by providing science learning that is fun and done together with children.

Therefore, one of the lessons used by researchers is to carry out science learning so that children's positive emotions can develop according to their age. Group A children's positive emotions that arise during science learning are in accordance with the indicators used by researchers, including; curiosity, self-confidence, social skills, character development, encouraging independence, and connectedness to nature.

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In addition, by having a sense of curiosity, children are given the opportunity to find out and ask the teacher. This not only encourages them to actively participate in learning, but also helps them develop critical thinking and *problem solving* skills. By interacting directly with the teacher, children can understand the learning better and feel more involved in the learning process.

Next, in the second meeting, the researcher obtained information based on the results of the information carried out, the influence of children's self-confidence through science learning. The results showed that when children feel confident, they are more active in participating, more courageous in asking questions, and more motivated to explore science concepts. This confidence plays an important role in increasing their interest and understanding of the material, thus creating a fun learning atmosphere.

During the third meeting, the children's confidence increased even more than the previous day. This can be seen from the children's increased participation in discussions and courage to try new experiments. Children seemed more active in asking questions and sharing their opinions, indicating that they were getting more comfortable with the learning environment. This improvement also reflects the positive impact of the learning method used, which encourages exploration and collaboration between peers. This growing confidence will certainly benefit their future learning.

In the fourth meeting, the impact of science learning on children's social skills became clearer. Children showed a better ability to cooperate in groups, support each other and communicate more effectively when doing science learning together. They were also more open in listening to their friends' opinions and valuing each other's contributions. This improvement in social skills not only enriched their learning experience, but also formed more positive relationships between classmates, creating a collaborative and fun atmosphere.

By the time of the fifth meeting, the children's character development in science learning was more prominent. The children showed high levels of discipline, responsibility and curiosity. They were better able to manage time when working on group tasks and showed initiative in finding solutions to the challenges faced. In addition, they also begin to show a sense of empathy and concern for the surrounding environment through science projects that involve something that happens in the environment. This experience not only strengthens the understanding of science concepts, but also shapes positive character traits and values that benefit the children's experience.

As seen in the sixth meeting, this science learning can encourage children's independence. Children began to show the ability to take initiative in their experiments and science learning/projects. Children not only follow instructions, but also dare to try new approaches and solve problems independently. In addition, children learn to plan the necessary steps, rotate the results, and reflect on what they have learned. This increase in independence is very important, as it gives children the confidence to take responsibility for their learning process, which will be very beneficial.

Then, in the seventh meeting, it was seen that encouraging children's independence can form positive habits in decision-making, increase intrinsic motivation, and assist children in developing the skills necessary to face challenges. Thus, children not only learn the science material, but also develop independent and proactive attitudes that will support their success in learning.

The last meeting used by researchers in the contribution of science learning to children's positive influence is the connection with nature. Based on the results obtained from observations during the eight meetings, it can be concluded that children showed greater interest in their surroundings. They began to pay more attention to environmental conditions, as children also showed high curiosity about natural phenomena, and many took the initiative to do activities such as other science learning. This increased awareness not only enriches their learning experience, but also forms a caring attitude towards the environment, which is essential in building a responsible generation.

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## Discussion

Science learning is an important component of early childhood education. Through science learning conducted in an engaging and interactive way, children not only learn about basic concepts about the environment, but also experience the formation of positive emotions that can have a long-term impact on their development (Shofia and Dirgayunita, 2024). Through interactive and fun science learning experiences, children can develop various aspects of positive emotions that affect their overall development. The results of this science learning can be seen in several key aspects, including curiosity, confidence, social skills and character development.

Curiosity, one of the greatest contributions of science learning is its ability to arouse children's curiosity. When children are given the opportunity to explore scientific concepts, they are encouraged to ask questions and seek answers (Handayani and Dewi, 2023). This questioning process not only trains children's cognitive skills, but also provides a satisfying experience when they successfully find answers. These curiosity-stimulating activities promote positive emotions such as enthusiasm and excitement. When children successfully answer their questions or discover new phenomena, they feel a deep sense of pride and satisfaction. This creates a positive cycle where their curiosity intensifies, encouraging them to keep learning and exploring the world around them.

Self-confidence, interactive science learning also contributes greatly to the development of children's self-confidence. In science activities, children are often faced with challenges that require problem solving (Nur and Nugraha, 2023). When they successfully complete an experiment or understand a concept, they feel a sense of accomplishment that boosts their confidence. The confidence formed from these positive experiences is very important in children's emotional development. Confident children tend to take more risks in learning and facing new challenges. They are also better able to cope with failure, as they understand that mistakes are part of the learning process. Thus, science learning is not just about scientific knowledge, but also about building a positive mentality that will be beneficial in various aspects of life.

Social skills, science learning in a group environment also supports the development of children's social skills. Many science activities are conducted in group settings, where children must collaborate to achieve a common goal (Yaswinda, et al., 2019). In this process, they learn to communicate, share ideas and listen to their peers' opinions. For example, in group experiments, children have to discuss and work together to achieve the desired results. These social interactions teach children about empathy and cooperation. They learn to respect different opinions and find ways to resolve conflicts that may arise. The social skills formed during these science activities contribute to positive emotions, such as a sense of community and friendship. Children who have good social skills tend to be happier and better able to form healthy relationships with their friends.

Character development, science learning also plays a role in children's character development. Through learning experiences, children are taught about responsibility and perseverance. When they are given the task to conduct an experiment, they learn to plan, execute and evaluate the results. This process teaches them that the effort put in will be directly proportional to the results obtained. These positive values such as responsibility and discipline are important to build children's character. A strong character will help children face future challenges with a positive attitude. They will learn not to give up easily and keep trying despite failure, which is part of the real learning process, as Verdianingsih, (2018) said.

Encouraging independence, science learning also helps children develop independence (Suhardja and Watini, 2022). In many activities, children are given the freedom to experiment and find their own solutions. This teaches them to think critically and be independent in solving problems. This independence is not only beneficial in the context of science, but also in everyday life. When children feel they have control over their learning process, they tend to be more motivated and energized. The independence that is formed will encourage children to continue to seek new knowledge and experiences, reinforcing the positive emotions they feel.

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Thus, as stated by Novianti (2022), connectedness with nature through science learning, children can also develop a deeper relationship with nature and the surrounding environment. Activities such as observing flora and fauna or conducting experiments with natural materials help children understand the importance of protecting the environment (Hartati, 2022). This awareness can foster a sense of responsibility towards nature and increase positive emotions such as love and appreciation for the environment. These experiences can also trigger children's interest in contributing to environmental conservation efforts. When children feel connected to nature, they will be more motivated to protect and care for the environment, which is a valuable form of positive emotion.

## CONCLUSION

Science learning is an important component of early childhood education. Through science learning that is done in an interesting and interactive way, children not only learn about basic concepts about the environment, but also experience the formation of positive emotions that can have a long-term impact on their development. However, the formation of positive emotions in children through science media requires the right approach or method to support its success. Based on research conducted at KB Lab Integrated PAUD Tunas Siliwangi, the contribution of science learning to the formation of positive emotions in early childhood has a significant impact. The results can be seen from several main aspects, namely: 1) curiosity; 2) self-confidence; 3) social skills; 4) character development; 5) encouraging independence; and 6) connection with nature.

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