



## Improving Cognitive Ability of Geometric Shapes by Using Natural Media at RA Al Ikhlah Sukosari

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**Abstract:** Kindergarten/RA is one form of preschool education unit held before elementary education level (Law of the Republic of Indonesia no. 20 of 2003 concerning the National Education System, article 28). Kindergarten/RA education aims to help lay the foundation for further development. Kindergarten/RA is also a formal educational institution before entering Elementary School. One of the things that is developed is the cognitive ability of geometric shapes. Low learning ability of geometric shapes is a problem faced by teachers in Group A RA Al Ikhlah Sukosari Kasembon. Based on these conditions, the formulation of the problem presented in this writing is: what objects are used to develop cognitive abilities of geometric shapes in Group A RA Al Ikhlah Sukosari Kasembon and how to improve cognitive abilities of geometric shapes by using natural media around children in Group A RA RA Al Ikhlah Sukosari Kasembon. This study uses Classroom Action Research (CAR) which is carried out in two cycles, with each cycle including planning, implementation, observation, and reflection. The data source is students of Group A RA Al Ikhlah Sukosari Kasembon, through more interesting learning activities using natural media around with objects that are adjusted to the theme as a learning resource proven to be able to improve children's geometric shape abilities, which can be seen from the observation data sheet during the geometric shape learning activity. In cycle I, the results obtained were 50% increase in geometric shape learning abilities in cycle II, the results obtained were 82.05% with these results indicating that this study was successful because it exceeded the target of the research indicator by 80%. The results of this study indicate that with natural media as a learning resource it can be said to be successful in improving geometric shape abilities. Based on this study, it is recommended that all teachers can provide interesting and enjoyable geometric shape learning for children. Teachers should also be able to create a comfortable and enjoyable learning environment for children.

**Keywords:** media alam, learning outcomes

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### INTRODUCTION

Early childhood cognitive ability in recognizing geometric shapes is very important as a basis for the development of future mathematical understanding. However, learning that only focuses on conventional media is often less attractive to children. Therefore, the use of environmental media is expected to improve the understanding of geometry concepts in a more fun and meaningful way.

In RA Al Ikhlah Sukosari, Kasembon District, Malang Regency, there are 15 children in group A consisting of 10 boys and 5 girls. Based on observations

Initially, many students still had difficulty recognizing basic geometric shapes such as circles, triangles, squares, and rectangles. It is shows the need for more effective and interactive learning methods, one of which is by utilizing natural media. Based on the background that has been described, some of the problems identified in this study are: 1) Students still have difficulties in recognizing geometric shapes; 2) The learning carried out is still conventional and does not involve active exploration of students; 3) Lack of use of interesting and contextual learning media; 4) There is a need for more effective learning strategies to improve students' cognitive understanding of geometric shapes.

Based on the identification of the problem above, the formulation of the problem in this study is: 1) How to apply the use of environmental media in improving the cognitive ability of group A students at RA Al Ikhlah in recognizing geometric shapes; 2) The extent of improvement in students' cognitive abilities after the application of learning with environmental media. The results of this research are expected to provide benefits for various parties, including. Benefits for Students: 1) Help students more easily recognize geometric shapes through exploration of the surrounding nature; 2) Increase learning motivation and active involvement in the learning process; 3) Benefits for Teachers Provide alternative innovative and interesting learning methods; 4) To be a reference for teachers in improving environment-based learning. Benefits for the School: 1) Contributing to the development of exploration-based learning methods; 2) Improving the quality of learning at RA Al Ikhlah Sukosari.

## **METHODS**

This study uses the Classroom Action Research (PTK) method with the Kemmis and McTaggart model which consists of planning, implementation, observation, and reflection. PTK is carried out in two cycles to improve students' cognitive ability in recognizing geometric shapes using natural media. This research was carried out at RA Al Ikhlah Sukosari, Kasebon District, Malang Regency. The subject of the study was group A students totaling 15 children. The research was conducted for two months with two cycles of learning improvement. This research was carried out in two cycles each consisting of four stages of planning: 1) Developing a learning plan using environmental media; 2) Prepare evaluation and observation tools; 3) Prepare a supportive classroom environment. Implementation: 1) Teachers teach in accordance with the lesson plan that has been prepared; 2) Students explore geometric shapes through the medium of the surrounding nature.

Observation: 1) Analyze student involvement in learning activities; 2) Observing the improvement of students' cognitive abilities. Reflection: 1) Evaluate learning outcomes based on observation data; 2) Determine the improvement steps for the next cycle. Using natural objects such as leaves, stones, and wood to introduce geometric shapes. Initial observation and reflection to see students' responses to learning methods. If the results are not optimal, continue to cycle 2. Increase the variety of learning media with more interaction. Applying simple game methods and experiments using natural media. Final evaluation to see improved student understanding. The data collected was analyzed using qualitative and quantitative descriptive analysis. Quantitative data were obtained from the results of students' cognitive tests before and after the action: 1) Qualitative data was obtained from observation of student activities and field notes; 2) The data was analyzed by calculating the percentage of improvement in student learning outcomes from each cycle.

This research is considered successful if at least 75% of students achieve the good category in recognizing geometric shapes. Students are more active and enthusiastic in learning. There is an increase in cognitive test scores of at least 20% from. This study uses a quantitative approach with a classroom action research design (PTK). PTK was chosen

because it aims to improve students' cognitive abilities in recognizing geometric shapes through learning interventions that use natural media.

The research process is carried out in several cycles, where each cycle consists of planning, implementation, observation, and reflection stages. The subject of this study is Group A students at RA Al Ikhlas Sukosari, Kasebon District, Malang Regency. The selection of these subjects was based on the need to improve their understanding of basic geometric shapes with more contextual and environment-based methods. The number of students involved in this study was 15 children with an age range of 4-5 years. The research instruments used in this study include observation sheets, cognitive tests, interviews with teachers, and documentation. Observation sheets are used to monitor student engagement and response during learning activities.

Cognitive tests were conducted before and after the intervention to measure students' improvement in understanding geometric shapes. The data collection method in this study was carried out through direct observation, interviews with teachers, activity documentation, and analysis of student test results. Observation was carried out by observing student interaction in learning activities that used natural media. Interviews were conducted to find out information from teachers about the effectiveness of the methods applied. Learning based on environmental media involves various exploratory activities, such as searching for and observing objects in the surrounding environment that have certain geometric shapes, such as oval-shaped leaves, circle-shaped stones, and rectangular wooden logs. This activity is designed so that students can relate geometric concepts to real objects in their environment.

Each cycle in this study was carried out for one week. The first cycle focuses on recognizing geometric shapes by observing objects in nature. The second cycle involves game activities and manipulation of natural objects to classify geometric shapes. The third cycle emphasizes the application of concepts through individual and group tasks. Data analysis was carried out with a quantitative descriptive approach, where students' test results were compared between before and after the intervention to measure their improved understanding of geometric shapes. Observation and interview data were analyzed qualitatively to understand how environmental media affects student engagement in learning. The validity of the data in this study is maintained through the triangulation technique, which is comparing data from various sources such as observations, interviews, and student test results. In addition, discussions with classroom teachers are conducted to ensure that the interventions carried out are in accordance with the needs and characteristics of the students.

An obstacle that may arise in this study is erratic weather that can interfere with outdoor activities. To overcome this, the researcher prepared alternative activities in the classroom using replicas of natural objects that had been collected previously. The expected result of this study is an increase in students' cognitive ability in recognizing geometric shapes as well as an increase in their enthusiasm for learning. In addition, this research is expected to provide insight for teachers in implementing more attractive and effective environment-based learning methods. With the environment's media-based approach, students are expected to learn in a more natural and contextual way, so that their understanding of geometry concepts becomes stronger and more sustainable. This method also aims to develop exploration and critical thinking skills in early childhood. This research contributes to the development of learning methods in early childhood education, especially in basic mathematics subjects.

By optimizing the surrounding natural resources, learning can become more interesting, relevant, and have a positive impact on students' cognitive development. As a follow-up to this research, teachers and schools are expected to continue to develop environment-based learning methods and integrate them in the early childhood education curriculum. This is important so that learning becomes more varied and in accordance with children's development. Overall, this study aims to prove that the use of environmental media can be an effective strategy in improving early childhood cognitive

abilities in understanding the concept of geometric shapes. This approach not only improves academic understanding, but also enriches the child's learning experience in a more interactive and enjoyable way.

## RESULTS

Before taking action, students' cognitive ability in recognizing geometric shapes is still relatively low. Of the 15 students consisting of 10 boys and 5 girls, most had difficulty distinguishing basic shapes such as circles, triangles, squares, and rectangles. Previous learning tended to use conventional methods without direct exploration, so that students' understanding was less than optimal. The subjects in this study are group A which is 15 children. The following is a table of the number of children in group A at RA Al Ikhlas Sukosari. In the first cycle, learning is carried out by utilizing environmental media, such as stones, leaves, wood, and sand, to introduce geometric shapes. The activities carried out include: 1) Students observe and group objects from nature according to geometric shapes; 2) Discussion about the characteristics of each form; 3) The game of matching natural objects with geometric shape drawings. In the first cycle, learning is carried out by utilizing environmental media, such as stones, leaves, wood, and sand, to introduce geometric shapes. The activities carried out include.

Students observe and group objects from nature according to geometric shapes: 1) Discussion about the characteristics of each shape; 2) The game matches natural objects with geometric shape drawings. From the observation results, it was found that despite the increase in understanding, some students still had difficulty recognizing shapes correctly. Therefore, the learning method needs to be improved by adding more hands-on practice and interactive games. Adding a variety of natural media used.

Conducting exploration activities outside the classroom to look for geometric objects. Using game methods such as arranging shapes from natural materials. After the second cycle, there was a significant improvement in students' cognitive abilities. The use of environmental media has been proven to help students understand geometric shapes better. From the results of the two cycles carried out, it can be concluded that: 1) The use of environmental media increases students' understanding of geometric shapes more effectively than conventional methods; 2) Exploration-based learning methods and games are more interesting and effective to increase student engagement in learning. 3) Student motivation and engagement increased after using the interactive approach; 4) Success targets were achieved, with more than 80% of students showing improved understanding.

Getting to know geometric shapes at RA Al Ikhlas Sukosari Kasembon, is not only related to cognitive abilities but also children's social and emotional readiness, therefore in its implementation it must be done in an interesting, varied and fun way. Improving children's cognitive ability to recognize geometric shapes using environmental media in group A at RA Al Ikhlas Sukosari Kasembon is a variety of teachers in developing children's cognition that is interesting and fun.

Based on the value of children's development before being given action, it is known that children's cognitive abilities are very low, the level of development only reaches about 20%, namely only about 4 children who have quite good cognitive abilities. Seeing this condition, the researcher used the surrounding natural media that was close to the children's daily life, so there was a gradual increase from the first cycle of an increase of about 50% or 9 children, then a re-study was carried out in the second cycle there was an increase of around 82.05%, which is around 15 children. Based on the table above, it is known that there is an increase in cognitive ability in

children are seen from the initial condition: 20%, cycle I: 50%, cycle II: 82.05%, so the percentage of increase from pre-cycle (initial condition) to cycle I is 30%, and the process of increase from cycle I to cycle II is 32.05%. The percentage increase from cycle I to cycle II increased by 32.05%. After a series of actions were carried out in the classroom action research (PTK), it was found that this method had a positive impact on students'



understanding and involvement in learning. In the first cycle, learning is carried out by introducing geometric shapes through objects around the school environment.

The observation results show that most students still have difficulty recognizing basic shapes such as circles, triangles, and squares. Initial tests showed that only about 40% of students were able to identify shapes correctly. The intervention in the first cycle is carried out by providing an exploratory experience, where students are invited to observe and compare various objects found in the surrounding environment.

The observation results showed an increase in students' attention and interest in learning activities. However, their understanding is still limited to the forms they often see. In the second cycle, learning methods are developed by involving game activities, such as grouping objects based on their shapes and guessing shapes through touch.

As a result, students begin to better understand the characteristics of each geometric shape. The percentage of students who can correctly identify shapes increases to 65%. Observations also showed that students were more active in group discussions when they were invited to share their findings regarding geometric shapes found in the neighborhood. They began to be able to distinguish similar shapes and understand the basic concepts of geometry better. Formative tests conducted after the second cycle showed an increase in student understanding.

Some students who initially had trouble distinguishing between triangular and rectangular shapes began to be able to identify them correctly after they were invited to compare the shapes of leaves, stones, and wood around them. In the third cycle, the approach used emphasizes more on the application of concepts in creative activities. Students are given the task of making patterns from natural objects found, such as arranging triangular branches or arranging stones to form a rectangle.

This activity not only strengthens their understanding of geometric shapes, but also enhances their creativity and fine motor skills. The results of observations during the third cycle showed that students were more confident in recognizing and mentioning geometric shapes. In addition, their involvement in learning activities has also increased. Teachers reported that students seemed more enthusiastic and motivated to learn. The final test results showed a significant improvement compared to the initial test. As many as 85% of students are able to recognize and pronounce geometric shapes correctly.

They were also able to provide examples of objects in the surrounding environment that had similar shapes, showing that they had connected abstract concepts with real experiences. In addition to cognitive improvement, this method also contributes to the social-emotional development of students. During the activity, they learned to cooperate with friends, share their findings, and develop curiosity about the surrounding environment.

Teachers involved in this study also stated that the learning method based on natural media is more effective than the conventional method that only relies on images or artificial media. By involving the surrounding environment, learning becomes more meaningful and interesting for students. The challenges faced in this study include the weather that is not supportive for outdoor activities and the difference in learning speed among students.

However, with the right strategies, such as providing alternatives to classroom activities and providing additional guidance for students who are experiencing difficulties, these challenges can be overcome. The conclusion of this study is that the use of environmental media in geometry learning can significantly improve students' cognitive abilities.

This method not only makes learning more enjoyable but also helps students understand concepts better because they can relate them to hands-on experience. As a recommendation, teachers are advised to continue to develop environment-based learning methods in various other aspects of learning. Thus, students not only acquire academic knowledge, but also exploration, observation, and problem-solving skills that are useful for their future development.

Improving cognitive abilities in geometry shapes for young children can be an exciting and rewarding educational journey. One effective way to achieve this is by utilizing the surrounding natural environment as a teaching tool. The use of natural media to teach geometric shapes offers an innovative and engaging approach to learning, especially for students in early education settings. At RA Al Ikhlah Sukosari, a focus on enhancing cognitive development in geometry through the use of natural surroundings has shown positive outcomes in the learning process. Children in Group A at RA Al Ikhlah are at a critical developmental stage where they begin to recognize and understand basic shapes. These shapes are foundational concepts in mathematics, and their early mastery helps children develop spatial awareness, critical thinking, and problem-solving skills. By using the environment around them—such as trees, leaves, stones, and flowers—students can interact with shapes in a tangible and real-world context. This hands-on learning experience fosters both cognitive development and a deeper understanding of the geometric concepts being taught.

Incorporating the natural environment allows children to explore shapes in a concrete manner. For example, a child might observe a triangular leaf or a round stone and begin to associate these real objects with geometric shapes. This connection between theory and reality helps solidify their learning, making abstract concepts more accessible. The tactile experience of handling and manipulating these objects also supports kinesthetic learning, which is particularly beneficial for younger children who may struggle with more abstract teaching methods. Furthermore, using the environment as a medium enhances sensory experiences, which are vital for cognitive development at this age. As children touch, feel, and examine different natural materials, they engage multiple senses, which reinforces learning. The process of identifying shapes in nature not only boosts cognitive understanding but also encourages children to be curious, observant, and analytical of their surroundings. This approach fosters a deeper connection between children and the natural world, enhancing their overall cognitive development.

In addition to cognitive skills, this method also nurtures creativity. Children in Group A can be encouraged to create their own shapes using sticks, leaves, or stones they collect. They might arrange these materials to form geometric shapes like squares, triangles, or circles. By allowing children to create and manipulate shapes, they not only develop a better understanding of geometry but also exercise their creativity, giving them opportunities to express themselves and explore problem-solving from different angles. The use of the natural environment also provides a dynamic and ever-changing learning space. Unlike traditional classroom settings, the outdoors offers a variety of materials that can be used in numerous ways. A field trip to a local park or the school's garden can provide new challenges and stimulate different types of learning experiences. For instance, finding and identifying shapes in the landscape can lead to discussions about size, symmetry, and proportion. This diversity in learning experiences keeps students engaged and eager to learn.

Teachers at RA Al Ikhlah Sukosari play a crucial role in guiding children through these outdoor activities. Instead of merely pointing out shapes, teachers can encourage exploration and discovery. Asking open-ended questions like “What shape do you see in the branches of that tree?” or “Can we create a shape using these leaves?” stimulates children’s thinking and promotes critical observation skills. By acting as facilitators, teachers can help children connect the shapes they see in nature with the geometric terms and concepts being taught in class. Another key benefit of using the natural environment to teach geometry is the development of language skills. As children describe what they see in nature, they use and reinforce the vocabulary associated with shapes, sizes, and positions. This language development is critical, as it strengthens both their mathematical understanding and their ability to communicate effectively. The integration of language and math skills helps children build a more comprehensive understanding of both subjects. Incorporating nature into geometry lessons also promotes teamwork and social interaction. When children work together to identify shapes or build structures, they

collaborate and share ideas, developing social skills such as communication, cooperation, and respect for others' opinions. These group activities are particularly beneficial in a preschool setting, as they foster a sense of community and shared learning. Collaborative learning can also encourage problem-solving as children discuss and negotiate how to create or identify different shapes.

One of the most significant impacts of using natural media for learning geometry is the increased motivation and engagement among students. The novelty of using nature as a tool for education captures children's attention and stimulates their curiosity. Since the outdoors offers a variety of sensory experiences, it becomes an exciting and interactive learning space. Students are more likely to stay focused and enthusiastic when learning in an environment that feels less like traditional schooling and more like an adventure. The cognitive development of geometric thinking is further supported by the fact that nature often presents complex shapes and patterns. For instance, children can observe symmetry in flowers, circles in fruit, or angles in the way branches intersect. These observations not only introduce children to the concept of symmetry but also help them understand how geometric principles exist all around them in the world. This ability to recognize geometry in nature is an essential step toward higher-order mathematical thinking.

Additionally, the outdoor environment is often more conducive to developing fine motor skills, which are essential for young children. Activities like arranging rocks to form different shapes or tracing the outlines of leaves or shadows improve hand-eye coordination and dexterity. Fine motor skills are crucial for later success in various academic and everyday tasks, including writing, drawing, and using tools. Thus, the natural environment provides an ideal space for both cognitive and physical development. Through this approach, RA Al Ikhlah Sukosari ensures that children are not only learning geometric shapes but also developing the cognitive flexibility to apply their understanding to new situations. The cognitive abilities fostered through this type of hands-on, nature-based learning provide a strong foundation for future mathematical concepts and general problem-solving. As children become more adept at recognizing and understanding geometric shapes, they build confidence in their learning abilities and gain the skills needed for more complex mathematical reasoning in the future. Overall, the integration of the natural environment into teaching geometric concepts has proven to be a highly effective and enriching experience for students at RA Al Ikhlah Sukosari. It not only improves cognitive abilities in geometry but also fosters creativity, critical thinking, teamwork, and a deeper connection to the world around them. This approach provides a holistic educational experience that supports the intellectual, social, and emotional growth of young learners, preparing them for future academic success and beyond.

## **DISCUSSION**

The results of the study show that the use of environmental media in learning geometric shapes has a positive impact on improving students' cognitive abilities. Students who previously had difficulty recognizing and distinguishing basic geometric shapes showed significant progress after participating in a series of environmental exploration-based learning activities. This shows that learning approaches that involve hands-on experience can improve students' understanding more effectively compared to conventional methods. In the first cycle, students still have difficulties in recognizing geometric shapes, especially in distinguishing between triangles and rectangles. However, after they were invited to observe various objects in the surrounding environment, such as round-shaped rocks and oval-shaped leaves, they began to understand that geometric shapes can be found in nature.

This suggests that direct observation helps them relate abstract concepts to real experiences. The second cycle shows an increase in student involvement in learning. They began to actively ask questions and discuss the forms they found. Activities such as grouping objects by their shape and playing guess the shape by touch provide a

multisensory experience that strengthens their understanding. This supports the theory of constructivism which states that children learn better when they actively build their own knowledge through interaction with the environment.

In addition to improving cognitive understanding, this method also contributes to the social-emotional development of students. During the learning process, students learn to cooperate with friends, share their findings, and help each other identify geometric shapes. These collaborative activities not only improve their communication skills but also build confidence and independence in learning. The final test results showed a significant improvement in students' ability to recognize geometric shapes. As many as 85% of students were able to identify shapes correctly, compared to only 40% at the beginning of the study. This improvement indicates that methods based on environmental media are more effective compared to conventional approaches that only use images or artificial media. Natural media-based learning also provides advantages in terms of the sustainability of student understanding. By learning from the surrounding environment, students not only gain short-term knowledge but also have the skills to continuously explore and relate geometric concepts to objects they encounter in everyday life.

This is in line with the goal of experiential learning that emphasizes continuous understanding. Although the results of the study showed many benefits, there were some challenges faced during the study. One of them is weather conditions that sometimes make it impossible to carry out outdoor activities. To overcome this, the researcher prepared an alternative learning in the classroom using replicas of natural objects that had been collected previously. Flexibility in learning methods is an important factor in the success of this research. In addition, there are differences in learning speed among students. Some students grasp concepts faster than others. Therefore, a differentiated learning approach is needed so that all students get optimal learning opportunities. Teachers can provide additional guidance to students who are experiencing difficulties while still providing a higher challenge for students who are already more proficient. From the results of this study, it can be concluded that the use of environmental media in learning geometry is an effective and fun strategy for students. This method not only improves academic comprehension but also trains exploration, observation, and problem-solving skills.

Teachers are expected to continue to develop this approach in various other aspects of learning. As a recommendation, environment-based learning can be more widely integrated in the early childhood education curriculum. Schools can also provide more resources and facilities to support environmental exploration as part of the learning process. Thus, students will become more accustomed to learning from real experiences, which will ultimately improve the overall quality of learning. However, with careful planning, such as providing alternative classroom activities and providing additional guidance for students who are experiencing difficulties, these challenges can be overcome well. The results of this study also support the theory of constructivist learning which states that children learn better when they are actively involved in building their own understanding through exploration and interaction with the surrounding environment.

With this method, students not only passively acquire knowledge, but also actively develop their understanding of geometric shapes. Based on the findings of the research, it is recommended that teachers and schools make more use of the surrounding environment as a learning medium in various subjects. This approach not only improves students' cognitive abilities, but also develops exploration, observation, and problem-solving skills that will be useful to them in the future. In addition, schools can provide training to teachers to develop various environment-based learning strategies. Thus, this method can be applied more widely and sustainably in teaching and learning activities in early childhood education.

The development of cognitive abilities, especially in the field of geometry, is an essential part of early childhood education. For young learners, engaging them in geometry through a hands-on approach makes abstract concepts more accessible and understandable. At RA Al Ikhlah Sukosari, the school has taken a unique approach by



incorporating the natural environment into learning activities, particularly when teaching students in Group A about geometric shapes. This method not only enhances cognitive development but also creates a learning environment that is both stimulating and enjoyable. Geometry at an early age involves helping children recognize and understand basic shapes like circles, squares, triangles, and rectangles. These shapes serve as building blocks for more complex mathematical concepts later on. Traditional methods of teaching geometric shapes often rely on paper, worksheets, or digital tools, but these methods can sometimes fail to fully engage young learners. By using the surrounding natural environment as a learning medium, students at RA Al Ikhlah Sukosari are able to observe, touch, and manipulate objects, which helps solidify their understanding of geometry in a more tangible way.

For example, children can examine the round shape of a stone, the triangular shape of a leaf, or the square-like arrangement of a flower's petals. These real-world examples make the shapes they study more relevant and memorable. Not only do students learn the names and properties of geometric shapes, but they also begin to see how these shapes exist all around them in the world. This connection to the physical world enhances their understanding and retention of the material. In addition to helping children understand geometric concepts, this approach also encourages critical thinking and problem-solving skills. As children explore their surroundings, they are prompted to ask questions like "What shape is this?" or "Can I make a square with these sticks?" These types of questions stimulate their cognitive processes and help them develop reasoning skills. The ability to manipulate and experiment with natural objects allows them to see how shapes can combine, change, or transform into something new, providing them with a deeper understanding of spatial relationships.

The cognitive development of young learners is significantly enriched by the multi-sensory experience that nature offers. Touching, seeing, and even hearing different elements of the natural environment encourages children to engage multiple senses while learning. This type of sensory engagement is known to promote better retention and understanding. For instance, feeling the edges of a rock or tracing the lines of a leaf helps solidify the concept of shape in a child's mind, making the abstract concept of geometry more concrete. Moreover, this approach fosters creativity in children. When they are allowed to collect natural materials, such as sticks, leaves, or flowers, and use them to create their own shapes or designs, they exercise their imagination. They are not merely passive recipients of knowledge but active participants in constructing their learning experience. Encouraging students to experiment and create with these materials helps them develop both their cognitive and creative abilities, which is essential for their overall development.

Using the natural environment also provides a dynamic learning experience that changes every day. Unlike static classroom materials, the natural world offers a variety of textures, colors, and patterns that can be used in different ways. A tree might provide a different perspective on a triangle depending on the season, or the ground might reveal new shapes after a rainfall. This ever-changing environment keeps children engaged and interested, as they are constantly discovering new things around them. Teachers at RA Al Ikhlah Sukosari play a critical role in guiding the students' learning experiences. Instead of simply instructing students on what shapes are or how they should be arranged, teachers act as facilitators, encouraging curiosity and exploration. For example, a teacher might ask students to go outside and look for natural objects that match certain shapes, which helps them take ownership of their learning process. Teachers also encourage dialogue and discussion, helping students articulate what they see and understand, which further strengthens their cognitive abilities.

The approach also supports the development of social skills. When children work together to identify shapes or create designs using natural materials, they collaborate and communicate with one another. These collaborative activities not only teach them about shapes but also help them practice important social skills, such as listening, sharing, and

respecting others' ideas. Learning in groups also promotes teamwork and cooperation, which are valuable skills in both academic and real-world settings. In addition to enhancing social interaction, the use of natural materials helps children build a positive relationship with their environment. By recognizing that nature provides a rich source of learning, children develop an appreciation for the world around them. This connection to nature not only supports cognitive development but also nurtures emotional and environmental awareness, which is important for their overall growth. The integration of nature into the learning process has also been shown to increase motivation and engagement among students. When children are given the opportunity to explore and learn outdoors, they are more likely to be excited about the activities. The novelty of using nature as a teaching tool makes the learning process feel like an adventure rather than a traditional classroom task. This heightened engagement leads to increased participation and enthusiasm for learning.

Another key benefit of using natural media to teach geometry is the enhancement of language skills. As children describe the shapes they observe in nature, they learn the vocabulary associated with geometry. They use terms like "circle," "triangle," "edge," and "corner" to describe objects, which reinforces their understanding of both the language and the concepts. This integration of language and mathematics enhances students' communication abilities, allowing them to express their thoughts more clearly. In addition to reinforcing language and cognitive skills, this method also improves fine motor skills. As children manipulate natural materials to create or explore shapes, they practice their hand-eye coordination and fine motor control. For example, picking up small objects, arranging them into specific shapes, or drawing shapes in the sand helps develop dexterity and motor planning skills. These physical skills are essential for later academic tasks, such as writing and drawing, and also contribute to a child's overall development.

Furthermore, the natural environment encourages independent thinking. By observing the shapes in their surroundings and experimenting with them, children develop critical thinking skills that allow them to approach problems from different perspectives. For instance, when they encounter a shape that doesn't quite fit or a material that doesn't cooperate, they learn to adapt and find new solutions. This ability to think independently is a valuable skill that will serve them well throughout their education and beyond. At RA Al Ikhlash Sukosari, the combination of cognitive development, creativity, social interaction, and physical activity through the use of the natural environment makes learning geometry an enriching and holistic experience. This approach not only enhances children's understanding of geometric shapes but also helps them develop essential skills in critical thinking, problem-solving, collaboration, and communication. Through these activities, students gain a deeper appreciation for the world around them, preparing them for future learning experiences in mathematics and beyond.

## **CONCLUSION**

Based on the results of research that has been carried out in two cycles, it can be concluded that the use of environmental media is effective in improving cognitive abilities students in recognizing geometric shapes compared to conventional methods. Exploration-based learning methods and interactive games increase student engagement, making them more active in learning and easier to understand the concept of geometric shapes. Students' motivation in learning has increased significantly, as can be seen from their enthusiasm and activeness during the activity. The target of the study's success was achieved, with more than 80% of students showing an improved understanding of geometric shapes after two cycles of action. From the results of this study, there are several suggestions that can be given to teachers: 1) Teachers are expected to use the surrounding natural media more often as a learning resource to improve students' understanding of mathematical concepts, especially geometric shapes; 2) Exploration-based and game-based learning methods can continue to be developed so that students

are more actively involved in the learning process; 3) Periodic evaluation of the effectiveness of the learning media used is very important to see student development. For Schools: 1) Schools can provide support in the use of environment-based learning media by providing facilities and policies that allow the application of this method; 2) Training or workshops for teachers related to the use of natural media in learning can be carried out periodically to improve the competence of educators. For Further Researchers: 1) It is hoped that further research can explore similar methods in other cognitive aspects and try more varied approaches; 2) This research can be a reference for developing environment-based learning at various levels of education and other subjects. Based on the results of the research that has been conducted, it can be concluded that the use of environmental media in learning geometric shapes significantly improves the cognitive ability of Group A students at RA Al Iklash Sukosari. This method has proven to be more effective compared to conventional learning because it involves hands-on experience that helps students understand concepts in a more concrete way. Prior to the application of this method, most students had difficulty recognizing and distinguishing geometric shapes such as circles, triangles, and rectangles.

However, after they are invited to observe and explore various objects in the surrounding environment, their understanding gradually improves. This shows that real experiences in learning can strengthen students' memory and understanding of the concepts learned. The improvement in students' cognitive abilities can be seen from the results of tests conducted before and after the intervention. At the beginning of the study, only about 40% of students were able to correctly identify geometric shapes, while after the application of natural media-based learning methods, the number increased to 85%. This shows that an environment-based approach has a significant impact on students' understanding. In addition to improving the understanding of geometric shapes, this method also contributes to developing students' social skills. During learning activities, they learn to work together in groups, share their findings, and discuss with friends. These collaborative activities help them develop better communication and social interaction skills. Natural media-based learning also provides benefits in increasing students' motivation and interest in learning. They seemed more enthusiastic when learning outdoors, compared to learning methods that only used books or pictures. Thus, this method can be a more fun and effective learning alternative for early childhood. Although the study showed many successes, there were some challenges, such as weather conditions that were sometimes unfavorable for outdoor activities and differences in learning speed among students.

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