

## **IMPLEMENTATION OF A SCIENTIFIC APPROACH TO DEVELOP THE COGNITIVE AND PHYSICAL MOTOR ASPECTS OF EARLY CHILDHOOD**

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**Abstract.** This research is motivated by Early Childhood Education (PAUD) now which places more emphasis on results. The scientific approach is a basic concept that provides experience in the learning process. In this approach, the aspect of the dominant ability to support is the coordination between the abilities of the cognitive aspects and the physical aspects of the child's motor skills. This research is a type of descriptive qualitative research. The subjects of this study were school principals, teachers and students. Data collection techniques used in this study are observation, interviews, and documentation. Data analysis used triangulation of sources, techniques and time. The results of this study: first, the implementation of a scientific approach at the Baitussalam Prambanan TKIT, namely in the initial, core and final learning with 5 stages, namely: Observing: observing pictures, objects, videos, and works by functioning the child's 5 sensory organs, Asking: conducting questions and answers between teacher and child or child and friend regarding an image, object, video, and child's work related to the theme/sub-theme, Gathering information: collecting/collecting material regarding images, objects, videos, and work discussed in the previous stage, Reasoning: giving each other an understanding of pictures, objects, videos, and children's work assisted by the teacher; and Communicating: communicating about pictures, objects, videos, and children's work communicated with knowledge obtained with new knowledge. Second, how to develop children's cognitive and physical-motor aspects with a scientific approach, namely through the development of Core Competences/Basic Competences in play activities at learning centers: Children's cognition can be known from children's abilities with understanding, consideration of information processing, problem solving, gaps, and beliefs can be used optimally, while the Physical-Motoric aspects of children develop seen from the skills of moving the child's limbs and can be developed by exercising eye and movement coordination, flexibility, strength, speed, and agility

**Keywords:** scientific approaches, aspect, cognitive, physical motor.

### **INTRODUCTION**

The scientific approach needs to be supported by a conducive environment from an academic standpoint, physically or non-physically. The condition of the learning environment that is orderly, safe, comfortable, optimistic and a high sense of desire from people in the school environment, health at school, and activities that focus on students becomes a condition

that can increase the desire and enthusiasm for learning. The desire to learn can give interest in the learning process, if the desire to learn is less fun it can lead to boredom and boredom (Mulyasa, 2013). In a journal written by Marilyn Fleer, Judith Gomes & Sue March, which stated that "The findings show the importance of a sciencing attitude on the part of the teacher for affording meaningful science learning for preschool children (Fleer et al., 2014). The findings show the importance of a scientific attitude in teachers providing meaningful science teaching for preschoolers. In learning the teacher must have an attitude that can build children so that children get meaningful knowledge. The aspects of development that are in the spotlight as educators are the cognitive and motor aspects of children.

Aspects of cognitive development are often equated with intellectual abilities because the process has a lot to do with a foundation that already exists in children and relates to the ability to think when solving problems. Because children during daily activities will face problems that must be solved by children. Solving problems starts from simple things to more complex stages in children, previously it was important to have the ability to find a way to solve the problem (Mulyasa, 2012). Meanwhile, according to Elizabeth Hurlock, that the physical aspect of motor means a self-development in controlling movement physically through movement of nerves, nerves, and muscles that move in a coordinated manner (Hurlock, 1978). Both aspects of development are closely related in completing children's tasks. Cognitive abilities regarding concepts are needed in solving problems faced by children. Children will think to solve the problem they are facing. Furthermore, the child will carry out this way of thinking by controlling the movements through the actions he takes in accordance with the child's mindset. There needs to be good coordination of children's movements to be developed. Between brain work and children's movements is very related, so that cognitive development is closely related to motor development. In developing these two aspects of development, it is necessary to have an approach to learning, namely a scientific approach.

## **RESEARCH METHOD**

The type of research used in this research is qualitative research. Qualitative research is research that has the goal of understanding a phenomenon experienced by research subjects such as behavior, perception, motivation, action, presented with descriptions in the form of words and narratives (Moleong, 2012). The research carried out by researchers was carried out at an early childhood education institution, namely at TKIT Baitussalam Prambanan. Research subjects are people who are a source of information that can provide data according to the problem under study. The research subjects here were determined based on certain considerations from the researchers (purposive sampling) (Nasution, 1992). The subjects of this study were school principals, teachers, students at TKIT Baitussalam Prambanan. Data collection techniques namely observation, interviews, documentation. Researchers will examine the validity of the data obtained. Researchers check the validity of the data and researchers use data triangulation to test the validity of the data to be obtained.

## **RESULTS AND ANALYSIS**

### **1.1 Implementation of a Scientific Approach**

The scientific approach (approach research) can be referred to as a scientific research that is implemented in a learning whose learning model is aimed at children in teaching students so that they are skilled in solving problems related to learning materials and problems in muri's daily life (Abidin, 2014). The scientific approach is a way of learning that can be

implemented in learning that aims to enable children to solve problems related to learning and related to science.

The scientific approach aims to develop scientific attitudes, love for knowledge and knowledge, love for the environment, and be guided by intellectual abilities. Known for his ability to make new discoveries, creative, innovative, dynamic and progressive. So the hope is that after completing learning students can compete, and be open to the development of science and technology. Can create and use appropriate technology that aims to advance the nation and state. This ability can be given from an early age by learning a scientific approach (Munastiwi, 2015). M. Hery Yuli Setiawan argues that learning with a scientific approach goes through the stages of observing (identifying something to be searched for), asking (designing hypotheses/formulating questions), gathering information/trying in several ways/techniques, reasoning (analyzing/associating/processing information), as well as communicating by making conclusions from the results to gain knowledge, skills and attitudes. From the process of these stages it can be developed through the activity of creating something (Setiawan, 2018).

The implementation of a scientific approach in early childhood is very important, because this approach can develop various aspects of child development. This is a very important experience for children to understand the environment around them. The experience of children collecting and processing information becomes the foundation for children to learn to think scientifically. Children's ability to develop scientific thinking can be stimulated from an early age. If the child already has the ability to think scientifically, it will make it easier to transfer scientific skills. Think scientifically by thinking in understanding the problem and thinking to find a way to solve the problem.

The implementation of the scientific approach at TKIT Baitussalam Prambanan is implemented when learning centers are carried out in the classroom and outside the classroom so that children get meaningful experiences in accordance with the basic theory of the scientific approach. The scientific approach at TKIT Baitussalam Prambanan is in accordance with the theory that an implemented approach can help students solve problems through learning activities. The learning activities go through three stages of activities, namely initial, core and final activities. Before implementing the scientific approach, the teacher designed the RPPH which was used as a reference in carrying out learning. The designed RPPH certainly looks at concepts from a scientific approach for early childhood. Learning with a scientific approach is implemented by training children to think critically and systematically. Children are invited to practice critical and systematic thinking so that children can solve problems in everyday life. So that children are trained to deal with problems and are invited to think critically and systematically so that children are more skilled. The scientific approach implemented at the Baitussalam Prambanan TKIT includes 3 stages as follows.

### **1.1.1 Initial Activities**

In the early activities, the goal is to focus the child's attention and bring out the motivation of the child so that the child can follow the lesson well. The activities carried out were opening greetings and initial appreception activities. The child will pay attention to the teacher in this early activity. If there are children who are not ready to take part in learning, they must be prepared in advance, for example the child still wants to play outside the classroom, or chat alone with friends. Teachers always condition children first, so that children are ready to participate in learning. In the early stages of learning with a scientific approach, the teacher usually makes appreciations first. The teacher starts with a greeting and then the children answer the teacher's greeting. The teacher asked the children how they were doing and continued to take the children's roll call and pray. In this initial activity the teacher also asked about the day, date, month and year when the lesson took place. The children

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answered the teacher's questions with enthusiasm and enthusiasm. So that children don't get bored or raise children's spirits, teachers usually invite children to sing, tell stories or play games.



**Figure 1.** Initial Activities

The stages carried out in scientific implementation at TKIT Baitussalam can be seen from the following stages:

1.1.1.1 Observe

Observing activities by children are by looking at objects, pictures or videos provided by the teacher. The child observes the object carefully. Pictures, objects and videos brought by the teacher should be interesting so that children will be curious about these objects. Below is a picture of the child being invited by the teacher to observe an object.

1.1.1.2 Ask

In the early stages, children observe objects, then in the next stage, they ask questions. From the previous observing activity, the child will ask questions. Interesting pictures, objects or videos brought by the teacher will attract the child's attention. In this stage, the child will ask questions about the image, object or video. Children will be given the opportunity to ask the teacher about objects, pictures or videos brought by the teacher. Questions from children arise from children's curiosity with interesting objects, pictures or videos. The teacher then gives answers to questions from children.

1.1.1.3 Gathering Information

In this initial activity, the child gets information from the teacher from the question and answer activity at the previous stage, then it is the child's task to collect this information. The information obtained by the child, then the child has an understanding within him. At this stage of gathering information, children are given the opportunity to observe and ask questions freely and in depth, so that children get more information.

1.1.1.4 Reasoning

Children will think or reason about the information they get by connecting something related to the information they get. The teacher here provides services to children, the teacher's job is to understand the child about the learning provided. The teacher provides assistance to children to reason by providing an understanding that is easy for children to understand. Children's reasoning at this stage is still real. The teacher gives an example or makes an analogy of something easily. So that it is easy for children to accept and understand the explanation from the teacher.

#### 1.1.1.5 Communicate.

Children will communicate the information they get with the teacher and with their friends. Teachers and children discuss questions and answers about the learning carried out. The purpose of communicating at this stage is that children get material reinforcement. When finished, the child is given a quiz by the teacher in the form of questions regarding the day's learning theme. Children who can answer quiz questions from the teacher are free to choose games and are free to invite their friends to play in joint play activities. Here the teacher can find out which children understand/master the learning that has been discussed in the early stages. Children who do not understand the day's theme material usually cannot answer questions from the teacher. Likewise with children who pay attention to the initial activities, children can answer quizzes from the teacher. The teacher introduces the tools that will be used to play. In addition, the teacher conveys the rules for children's play, chooses groups for children to play, chooses games for each child and then the teacher invites children to play in the play activities that have been provided by the teacher. The time given by the child is in accordance with the time allocation that has been determined and according to the existing schedule. So this initial activity is in accordance with the stages of early childhood learning activities.

This initial activity becomes the initial basis for carrying out subsequent activities. Teachers are required to prepare learning well. In this preparation, of course, there needs to be coordination between teachers in these initial activities. The teacher must master the learning material first so that the implementation is more focused. The teacher's involvement in this initial activity can be a reference in carrying out the next stage of activity, namely the core activity. So the teacher must provide a strong foothold to the child in order to make it easier for the child in the next stage of activity.

#### **1.1.2 Core Activities**

In this core activity, children carry out playing activities while learning on playing activities that have been provided by the teacher. On this occasion the children are given the freedom to explore with the tools and materials provided by the teacher. The teacher supervises every play activity carried out by children, besides that in this core activity the teacher can carry out an assessment of the process of playing activities. The teacher and the children communicate with each other about the children's activities in the river. Children are given the freedom to explore the river under the supervision of class teachers and accompanying teachers. The child is looking for objects and animals in the river. So the child experiences, sees and directly holds the objects and animals in the river.



**Figure 2.** Core Activities

The stages of children's play activities in the implementation of a scientific approach in the core activities at TKIT Baitussalam will be described as follows:

#### **1.1.2.1 Observe.**

Children observe learning objects with their senses, namely seeing with their eyes, hearing with their ears, smelling with their nose, feeling with their tongue, touching with their hands. In addition, children also know the functions and uses of tools and materials used for playing. Previously, the child had been given directions by the teacher, so the child worked according to what was directed and exemplified by the teacher.

#### **1.1.2.2 Ask.**

With the activities provided by the teacher children can explore. The child will have difficulty so the child will ask the teacher. The media provided by the teacher is of course media that can attract children's attention, so that children are curious and various questions arise. In this activity the teacher supervises the children in their playing activities.

#### **1.1.2.3 Gathering Information.**

By exploring, children will get information and understand through game activities prepared by the teacher. Exploration carried out by children in this core activity children do directly. That way the child will get information and experiences respectively. Children who have courage and creativity will explore more than children who are less daring and less creative when carrying out this core activity.

#### **1.1.2.4 Reasoning.**

In this activity, the child makes sense of the learning experience that is being carried out. Through this play activity, children can understand about their play activities. The teacher provides direction and supervision to children, so that children get good understanding. Children are independent in carrying out this play activity, so children can reason with the knowledge they get.

#### **1.1.2.5 communicate.**

In the core activities, communication can be carried out regarding play activities made by children. With questions and answers, children and teachers can have active interaction. Children carry out activities according to the direction of the teacher. Here the child carries out activities with the conditions described in the initial activity.

In this activity, children actively carry out the activities given by the teacher. activities carried out by children various kinds of games according to the direction of the teacher in the initial activities. While the teacher observes and walks around to direct the child in playing. In addition, teachers provide positive support for children. If the child has difficulty completing the game, the teacher will provide assistance. Another important thing is that the teacher supervises the children, ensuring that during this core activity the children play safely. If there are 5 minutes left, the teacher will tell the children to tidy up their tools and play materials. This core activity has been carried out in accordance with the stages of learning in core activities for early childhood. The activities that have been carried out by the teacher and children in this core activity are the core of the lesson that day.

### 1.1.3 Final Activities

In this final activity, carry out recalling / repeating the learning that has been carried out. The aim is to strengthen the knowledge that has been obtained during learning. By having conversations between the teacher and the children, this activity gets an emphasis on the material provided by the teacher as well as while the children are playing while learning.



**Figure 3.** Core Activities

The stages of implementing a scientific approach at the Baitussalam Prambanan TKIT in the final learning activities are as follows:

#### 1.1.3.1 Observe.

Observing activities during this final activity are usually observing children's work. The teacher takes some of the children's work from this activity and shows it to the other children. Children are asked to observe the results of the work. The child observes the results of the work regarding whether or not the child completes the task. Then observed the creativity of children in making a work.

#### 1.1.3.2 Ask

The activity of asking in this final activity the questions in this final activity vary. The teacher with the child asks about the work that the child has made or asks about the play activities that the child has gone through. In addition, the teacher asks children whether they are happy or not in playing activities in core learning.

### 1.1.3.3 Gathering Information

Children and teachers collect information from various play activities that children do. The activities that have been carried out by the children are of course related to the theme of the day. The information that the child gets during the core activities is reviewed again by the teacher. The teacher gives emphasis on material to children, so that children can collect the information they get to the maximum.

### 1.1.3.4 Reasoning

In the final activity at this reasoning stage, the teacher plays an important role because the teacher emphasizes the material on the child. The teacher carries out recalling of activities from the beginning with the aim that children get experiences that are easy for children to remember. with this direct experience, children can reason well. it helps children in children's reasoning patterns.

### 1.1.3.5 Communicate

The teacher communicates again by emphasizing the material for children's play activities. Communication in this final activity can be used to determine children's achievements in learning that children have received by asking questions. By knowing the child's absorption in understanding the material for children's play activities, the teacher can find out the child's achievement in the learning that has been carried out which is then used as the next evaluation.

In this final activity the teacher is in charge of giving the child to clean up his toys in the core activity. Children do it properly and neatly according to the teacher's directions. Children are used to this activity, so the children are independent in carrying it out. After the children have finished carrying out the teacher and children sit back in a circle formation. The teacher and the children recalled activities that had been carried out previously from the initial and core activities. In this final activity, it can be seen the level of achievement of children in previous activities by conducting questions and answers between the teacher and the children.

The scientific approach at TKIT Baitussalam Prambanan is implemented in learning activities. Learning activities at TKIT Baitussalam Prambanan consist of three activities, namely initial, core and final activities. In addition, learning at TKIT Baitussalam Prambanan uses a scientific approach which consists of 5 stages, namely observing, asking, gathering information, reasoning and communicating. From the description above it can be classified in the following table.

**Table 1.** Implementation of a Scientific Approach to Learning Activities

Scientific Approach	Initial Activity	Core Activities	End Activities
Observe	Pictures, objects and videos related to the	Tools and materials for children's play	Tools and materials for children's play



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	theme/sub-theme	activities related to themes/sub-themes	activities related to themes/sub-themes
Ask	Pictures, objects and videos related to the theme/sub-theme	Children's play activities related to the theme/sub-theme	Children's play activities related to the theme/sub-theme
Gathering Information	Pictures, objects and videos related to the theme/sub-theme of observing and asking activities	Children's play activities related to the theme/sub-theme	Children's play activities related to the theme/sub-theme
Reasoning	Pictures, objects and videos related to the theme/sub-theme of the information gathering activities	Children's play activities related to the theme/sub-theme	Children's play activities related to the theme/sub-theme

From the table above it can be seen that the learning activities at TKIT Baitussalam Prambanan consist of three stages of activity, namely initial, core and final activities. In these learning activities implementing a scientific approach with five stages, namely observing, asking, gathering information, reasoning, and communicating. The implementation of these activities varies. It is known that in the initial activities, pictures, objects and videos are related to the themes that are the object of implementing the scientific approach. In the core activities, tools, materials and main activities are related to the theme that becomes the object and implementation of the scientific approach. In the final activity, the children's work and the experience of children's play activities are related to the themes/sub-themes that are the object of implementing the scientific approach. So it can be seen that the differences from the various stages of game activities and the stages of the scientific approach that are implemented at TKIT Baitussalam are the different objects and activities that distinguish at each stage of learning activities and the scientific approach. This is evidenced by the results of the discussion above from observation and interviews.

### 1.2 Developing Children's Cognitive and Physical Motor Aspects

Developments that occur in the early days of a child's life are very important, so this early period is a golden period or often referred to as the golden age. This period can only occur once in human life and cannot be repeated. This is what causes childhood to be very important in human life. For this reason, early childhood education is absolutely necessary. Children must be nurtured and developed so that they can develop optimally according to the child's age (Sumiyati, 2014).

Baitussalam Prambanan TKIT has a way to develop children's cognitive and physical motoric aspects with a scientific approach. The way to develop it is through learning activities carried out at the center. In learning centers, children are given a stimulus to carry out various play activities. The provision of this stimulus aims to develop aspects of child development that are already owned by children. So that learning can be achieved in accordance with the vision, mission and objectives of TKIT Baitussalam Prambanan. Prior to implementing the scientific approach the curriculum development team compiled a curriculum that referred to the Child Development Achievement Level Standard (STPPA). STPPA is used as a reference for achieving child development, so it must be developed optimally. STPPA which is the reference will be achieved with learning, learning that is designed using a scientific approach. In STPPA, it contains Core Competencies (KI)/Basic Competences (KD) which are the basis and reference in developing children's development. The scientific approach is implemented when learning takes place through various play activities. This can be seen from various play activities as follows:

### **1.2.1 Developing Children's Cognitive Aspect**

How to develop cognitive aspects of children can be obtained by counting, counting, grouping, recognizing shapes, distinguishing things and so on. Based on the teacher's observation in the field of developing cognitive aspects, it is one of the materials that is difficult for children to understand, especially in counting activities. Recognizing the importance of aspects of cognitive development in early childhood among other developmental aspects, the cognitive aspect includes learning to count or count which is very important in everyday life, so counting or number recognition activities start early (Fauziddin & Elyana, 2018). The development of the cognitive aspect has the goal of obtaining the necessary psychological structures so that humans can think logically and can reason abstractly about actual problems and hypotheses. In addition, Piaget views that children's cognitive is a result of children's efforts to understand and process their world (Sumanto, 2014). Psychologically, children are certainly capable of thinking logically and reasoning through their senses, such as seeing and experiencing them. So that the child plays a direct role, then the child's thinking is obtained from seeing something, the child will reason about something he sees.

The development of the child's cognitive aspects, namely a state of increasing structure and function of the body related to understanding, consideration of information processing, problem solving, gaps in beliefs can be used optimally. The development of this cognitive aspect can be predicted and has a regular pattern so that it can be known gradually. In addition, the development of cognitive aspects in children becomes a state of maturity to think logically and be able to reason about the problems faced by children. Piaget found that children's knowledge is organized into three categories of knowledge about children's cognitive development, as follows: a) Physical Knowledge, children learn about objects in their environment that physically manipulate objects. They begin to construct mental concepts about the shape, size and color of objects. b) Logical-Mathematical Knowledge, children construct relationships regarding the concept of objects such as equals and objects, more and less, grouping, amount, how much. c) Social Knowledge, children learn the rules of behavior and knowledge about the actions of people through the involvement of children with the people around them (Beaty, 2013). There are three kinds of criteria for knowledge of the cognitive aspects of children, namely physical knowledge, logical-mathematical knowledge, and social knowledge. Furthermore, in the cognitive aspect of this child, the child has the ability to arrange the abilities possessed by the child in various ways and become a reaction in certain circumstances. So children must be given the opportunity to develop their cognitive aspects to the fullest.

The child will think by solving the problem and then do it according to his thoughts. This can be trained through play activities completed by children. Learning activities at TKIT Baitussalam Prambanan with a scientific approach to develop children's cognitive and physical motor aspects. The cognitive aspects of children in group B at TKIT Baitussalam Prambanan begin to increase the child's thinking ability to connect, assess, consider an event/event faced by the child. It can be seen from the way the teacher develops the designed KI/KD. Various activities that are made can develop children's cognitive. besides that the cognitive aspects of children developed in group B at TKIT Baitussalam Prambanan relate to the level of intelligence (intelligence), this is a sign that children can master concepts and have ideas.

On the concepts that children get, children can think and children can complete their daily tasks. At TKIT Baitussalam Prambanan, children are trained to develop these cognitive aspects by getting used to solving problems every day through playing activities that have been provided by the teacher. The play activities provided are very varied. So, from the experience of children from various play activities, the cognitive aspects of children can be trained properly. Through these play activities the teacher can design well the aim is to develop the cognitive aspects of children. In the cognitive aspect, the ability possessed by children is to think logically and reason with the help of the senses possessed by children.

### **1.2.2 Developing Physical Motor Aspects of Children**

The development of the physical aspect is the growth and changes that occur in people's bodies. The most obvious changes are changes in the shape and size of people's bodies. Motor development (motor development), namely a change that occurs progressively in control and the ability to make movements obtained through the interaction between maturity factors and training or experiences in everyday life which can be seen from the changes/movements made (Hildayani, 2016).

According to John W. Santrock, suggests the theory of physical motor aspects. Major advances in gross or fine motor skills occur in early childhood (Santrock, 2009). Children develop a sense of mastery through improving gross motor aspects such as walking and running. Improving fine motor skills, for example, can turn the pages of a book one by one and contribute to a child's sense of mastery in the second year.

The motor aspect is a process in which children learn to become skilled at moving their limbs. So children can learn from parents or teachers about movement patterns that children can do in order to train dexterity, speed, strength, flexibility, and accuracy of hand and eye coordination (Mursid, 2015, 12). The physical and motor aspects of children are conditions that experience changes in terms of size and shape which are interrelated with the skills of moving the child's limbs. The development of this motor-physical aspect can be developed through movement and eye coordination exercises, flexibility, strength, speed, and agility. These movements train the children's muscles to achieve maximum abilities.

How to develop the physical motor aspects of children can be obtained through balanced control of body movements. Children become skilled at moving their limbs. This is done by children to train dexterity, speed, strength, flexibility and accuracy of hand and eye coordination. At TKIT Baitusalam Prambanan it develops the physical and motor aspects of children by implementing a scientific approach. In the aspect of physical motor development that is developed, it is divided into two, namely gross and fine motor, the elaboration is as follows:

1.2.2.1 Rough, a movement resulting from the coordination of the muscles that demand the ability to rough movement. Movements that are driven rely on coordinating strength such as walking, running, lifting, kicking, jumping, and riding a bicycle. In gross motor development, children are more likely to have the confidence to carry out extreme activities. In addition, every child tends to be happy to race speed with his friends or with people who are more mature.

1.2.2.2 Smooth, a movement resulting from the coordination of the muscles that demand smooth movement abilities. Movements driven by relying on coordinating powers such as turning a book over, writing, cutting, folding, pasting, drawing, and coloring. In the development of fine motor skills, children are more likely to coordinate eye movements with their hands and arms. Children prefer to do activities that are relaxed and do not require heavy physical motor coordination.

The physical and motor aspects of children at the Baitussalam Prambanan TKIT begin to experience growth and changes that occur in the child's physique. This growth and change can be seen in the shape and size of the child's body. In children in the motor range, children will experience changes regarding control to carry out movements from training activities, experience and physical maturity. This can be seen from the increasing and changing movements of children in their daily life.

## CONCLUSION

The results of the research and discussion that have been carried out by the author regarding the implementation of a scientific approach to develop the cognitive and physical motor aspects of children at TKIT Baitussam Prambanan can be concluded as follows:

Implementation of a scientific approach at the Baitussalam Prambanan TKIT, namely in the initial, core and final learning with 5 stages, namely: Observing: observing pictures, objects, videos, and works by functioning the child's 5 sensory organs namely eyes, nose, ears, hands and tongue ; Asking questions: conducting questions and answers between the teacher and the children or the children and their friends regarding an image, object, video, and the child's work related to the theme/sub-theme of the day; Gathering information: collecting/collecting material regarding images, objects, videos, and works discussed in the previous stages; Reasoning: giving each other an understanding of pictures, objects, videos, and children's work assisted by the teacher; and Communicating: communicating about pictures, objects, videos, and children's work communicated with knowledge obtained with new knowledge.

How to develop the cognitive and physical-motor aspects of children by implementing a scientific approach at the Baitussalam Prambanan TKIT, namely through learning play activities at the centers as follows: Play activities given to children are as follows: Habituation of children who have an inquisitive and creative attitude; Introduction of new objects; The habit of exploring the environment, expressing ideas, thinking flexibly/flexibly; Solving problems in everyday life; Introducing objects around; Introducing the social environment; Introducing living things and natural events; Introducing objects that help humans; Recognize and use simple technology. The physical and motor aspects by providing play activities are given to children as follows: Introducing balanced nutritious food, personal and environmental hygiene; Introducing movements to develop gross and fine motor skills; Introducing a clean, healthy and self-safe way of life.

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