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APPLICATION COLLABORATIVE LEARNING MODEL IN IMPROVING COGNITIVE ABILITIES OF CHILDREN GROUP B TK NEO GENESIS

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Abstract

Cognitive ability is one of the important aspects that must be developed because thinking ability is the intelligence needed by children in order to develop knowledge about various things, both in solving problems and in understanding objects, events, and the environment. This study aims to evaluate the effectiveness of the collaborative learning model in enhancing the cognitive abilities of early childhood students in Group B at Neo Genesis Kindergarten. A varied and diverse learning model is one way to improve children's cognitive abilities, and this study was conducted to determine the improvement of cognitive abilities of Group B children at Neo Genesis Kindergarten through the application of collaborative learning models. The process of implementing research activities was carried out in 2 cycles, using observation sheets and documentation as data collection techniques. The results of the research that has been carried out can be seen in the increase in the percentage of children's completeness at the initial observation stage of 20%, in Cycle I the percentage increased to 45%, and in Cycle II the percentage of children's cognitive abilities increased again to 85%. In addition, the initial observation found several obstacles related to children's cognitive abilities, namely: children still have difficulty in classifying objects (based on colour, shape, and size), arranging and combining pictures, sorting numbers, and distinguishing the size of objects. Based on these data, it can be said that the application of collaborative learning models can improve the cognitive abilities of Group B children at Neo Genesis Kindergarten.
Keywords: Early Childhood; Cognitive Ability; Collaborative Learning Model

INTRODUCTION

Early childhood is the most important and fundamental age in the growth and development of children both physically and psychologically, in this phase children are referred to as the Golden Age, where at this time the potential possessed by children develops very rapidly (Suryana, 2021). Early childhood is referred to as a sensitive person, that is, children easily accept knowledge and skills that are in accordance with

the stages of growth and development that children have (Baiti, 2021). Children who are in the age range of 0-6 years are the age of entering the early childhood education (PAUD) level, which helps maximise children's growth and development and stimulate children's skills. States that early childhood education is a fostering effort given to children aged 0-6 years, which is carried out through providing educational stimuli to help development and growth so that children have readiness to enter further education (Kemendikbudristek, 2022). In Government Regulation of the Republic of Indonesia No. 4 of 2022 concerning National Education Standards, it is written that the standard level of achievement of early childhood development consists of six developmental areas, including religious and moral values, Pancasila values, physical motor, language, social-emotional, and cognitive development.

Early childhood requires educational efforts to achieve all aspects of development that children have optimally, one of which is the development of cognitive abilities. The development of cognitive abilities in early childhood is a change that occurs in thinking, children's intelligence in remembering, strategising creatively, preventing problems and the ability to connect sentences into meaningful conversations. The development of children's cognitive abilities can be seen from an increase in the way children think in assessing and considering something / event (Susanto, 2014). The development of cognitive abilities is also expressed as an ability to think. Where this ability will be obtained from a lot of learning or acquiring knowledge (Sulyandari, 2021).

Cognitive abilities are referred to as thinking abilities. Cognitive ability is a process that occurs internally in the centre of the nervous system when humans think (Sastrawati, 2023). Children need cognitive abilities in developing knowledge about what they see, hear, taste, touch, or smell through their senses (Wati, 2021). Cognitive ability is the child's ability to think logically which is obtained by the child through realistic information and ideas and involves the child's intelligence in solving a problem (Rozana, 2020).

Group B children at Neo Genesis Kindergarten in the initial observation showed a mastery percentage of 60% (12 children) in the very low category, 20% (4 children) in the low category, 15% (3 children) in the medium category, 5% (1 child) in the high category and no child in the very high category. The percentage of mastery of completeness at the initial observation stage was 4 children who reached the complete category (20%) and 16 children (80%) were declared incomplete. There were several problems and obstacles found related to children's cognitive abilities during the observation process, including: (1) children still have difficulty in classifying objects (based on colour, shape, and size); (2) children have difficulty in arranging and combining pictures; (3) children are still lacking in sorting numbers; (4) children still have difficulty in distinguishing the size of objects. This is influenced by the lack of enthusiasm of children in participating in learning related to cognitive abilities, one of which is due to the lack of variations in learning models used in stimulating the cognitive abilities of Group B children at Neo Genesis Kindergarten. Lack of children's self-confidence also affects children's enthusiasm in learning, self-confidence is an aspect of personality in the form of beliefs possessed by a person in the form of ability to be influenced by others and can do something optimistically, happily, and responsibly. The solution used in overcoming these obstacles is to provide motivation to learn to children, providing motivation is very useful because motivation is a desire that arises from the

child so that it causes passion, effort, feelings of pleasure, and enthusiasm to do better activities (Prima & Lestari, 2017).

Children's cognitive abilities are very important to improve, for this reason a learning model is needed that can help direct children to learn together effectively, namely by grouping children in several groups and children in collaborative groups work together to solve problems, complete a task, and or create a work (Narsa, 2022). The collaborative learning model itself is a learning process that combines children with different backgrounds and abilities working together in a small group to achieve a common goal. Through collaborative learning, children can exchange ideas, explore together, and complete projects (Diana, 2020). In line with the opinion of Inerney & Robert in (Santosa, 2021), collaborative learning is a way of learning carried out by children in groups to achieve learning goals. The way of learning carried out in collaborative learning utilises the social interaction of its group members as a means of building knowledge.

The steps of the collaborative learning model according to Yamin & Ansari (Mulyati & Parwati, 2021) are: (1). Children in groups set learning goals and divide their respective tasks; (2). Children in groups read, discuss and write; (3). Collaborative groups work in synergy, researching, analysing and formulating answers to tasks or problems in the LKS or problems found by themselves; (4). The teacher appoints one of the groups randomly (then strives so that all groups can take their turn to come forward) to present the results of their collaborative group discussions in front of the class; (5). Compiling each child's report on the tasks that have been collected and compiled in groups; (6). The report is corrected, commented on, assessed, and returned at the next meeting, and discussed.

Based on the above background, the author needs to reform the learning action by applying various and varied learning models that are effective in improving the cognitive abilities of Group B children, one of which is the collaborative learning model.

METHODOLOGY

This research was designed using Classroom Action Research (CAR). Classroom Action Research is research that is carried out to observe events in a classroom that is oriented towards the application of actions with the aim of improving quality or solving problems in the subject group under study and observing the level of success or the consequences of the action, which is then given further action that is a refinement of action or adjustment to conditions or situations so that better results are obtained Mu'alimin & cahyadi, RAH-2014 (in Bano dkk, 2022)

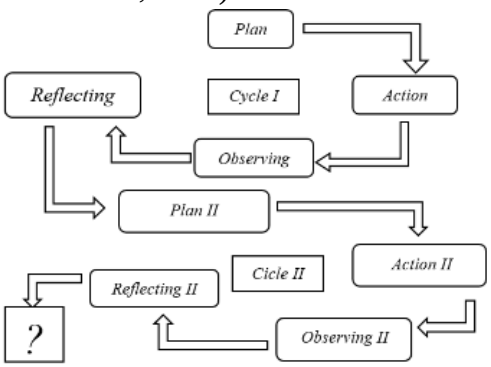

Figure 1. Classroom Action Research Cycle (Source: Mu'alimin & Cahyadi, RAH, 2022)

The subjects in this study were group B children of Neo Genesis Kindergarten, totalling 20 children. The object of the research is to improve the cognitive abilities of children in Group B of Neo Genesis Kindergarten through a collaborative learning model.

Data collection used in this study was carried out through the observation method with the guide of the assessment rubric. The data collected was analysed using descriptive statistical analysis, namely determining the Mean, Median and Mode then continued with a graphical image. The level of achievement of children's cognitive abilities was then compared with the percentage of ability in the five-scale National Benchmark Assessment criteria which can be seen in the following table:

Table 1. National Benchmark Assessment Criteria Guidelines (Source: Agung, 2014)

Percentage	Category	Completeness
90-100	Very High	Completed
80-89	High	Completed
65-79	Medium	Completed
55-64	Low	Not Completed
00-54	Very Low	Not Completed

RESULTS AND DISCUSSION

Initial Observation

The implementation of initial observations was carried out on Monday, 13 May 2024 through observation of the learning process involving 20 students. The initial observation stage was carried out in order to determine the extent of the cognitive abilities of Group B children at Neo Genesis Kindergarten before being given classroom research actions that would be carried out later. The results obtained from the implementation of initial observations are used as a basis for conducting research. The following table is an instrument for assessing the initial condition of Group B children at Neo Genesis Kindergarten.

Table 2. Data on the Results of Children's Cognitive Ability at the Initial Observation

Category	Total	Percentage	Criteria	Total	Mastery Percentage
Very Low	12	60%	Not Completed	16	80%
Low	4	20%			
Medium	3	15%	Completed	4	20%
High	1	5%			
Very High	0	0%			
Total	20	100%		20	100%

Based on the table above, it can be seen that children's cognitive abilities at the initial observation stage are still relatively low. This can be seen from the percentage of mastery obtained from 20 children, namely only 4 children (20%) who were able to reach the complete category and 16 children (80%) who were in the unfinished category. Based on these results, the results of the percentage of children's cognitive abilities categories can be described as Figure 2 below:

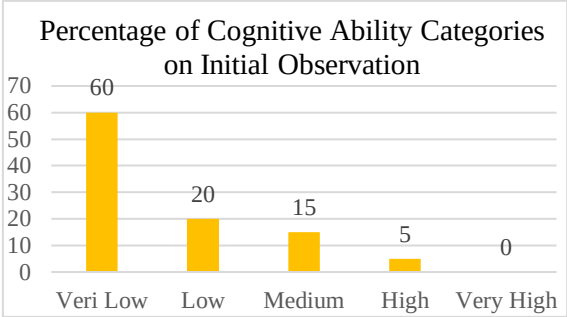

Figure 2. Percentage of Cognitive Ability Categories at the Initial Observation stage

Based on the graph above, it can be seen that 12 children (60%) get a very low category, 4 children (20%) get a low category, 3 children (15%) reach a medium category, 1 child (5%) reaches a high category and no child has reached a very high category. Based on the data that has been obtained at the initial observation stage, it can be seen that children's cognitive abilities are in the unfinished category, so that learning models are needed that can support in improving children's cognitive abilities. Therefore, the collaborative learning model in improving cognitive abilities that will be implemented in the Cycle Stage is expected to be a strategy in improving the cognitive abilities of Group B children at Neo Genesis Kindergarten.

Cycle I

The process of implementing learning at the Cycle I stage begins with providing learning materials according to a predetermined theme, then introducing and explaining the learning model that will be carried out in completing each task and LKS that will be given in the next activity. Children are first grouped in small groups of 4 children. During the implementation of the learning process through the collaborative learning model, each child actively performs each task in their group. The following is an instrument for assessing the condition of children in Group B of Neo Genesis Kindergarten through the collaborative learning model at the Cycle I stage which can be seen in the following table:

Table 3. Data on the Results of Children's Cognitive Ability in Cycle I Through Collaborative Learning Model

Category	Total	Percentage	Criteria	Total	Mastery Percentage
Very Low	3	15%	Not Completed	11	55%
Low	8	40%			
Medium	9	45%	Completed	9	45%
High	0	0%			
Very High	0	0%			
Total	20	100%		20	100%

Referring to the table above, the completeness of cognitive abilities of Group B children at Neo Genesis Kindergarten has increased after the process of implementing learning activities using the collaborative learning model. In Table 3. It was found that the percentage of completeness from the initial observation only reached 4 children (20%) to 9 children (45%). The percentage of children's ability can be presented as follows:

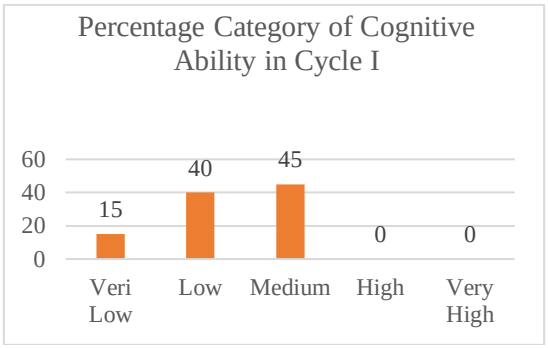

Figure 3. Percentage Category of Children's Cognitive Ability at Cycle I Stage

Based on the graph above, it can be seen that out of 20 children, 9 children (45%) can be grouped in the complete category while 11 children (55%) still have not reached completeness. The percentage of abilities achieved by children at the Cycle I stage is 3 children (15%) got a very low category, 8 children (40%) got a low category, 9 children (45%) reached the medium category, and no children reached the high and very high categories.

Furthermore, the results of descriptive statistical analysis at the Cycle I stage obtained the average percentage of children's cognitive abilities through the collaborative learning model, namely Mean (M = 37.9) > Median (Me = 37.3) > Modus (Mo = 35.7) which is displayed in the following polygon graph.

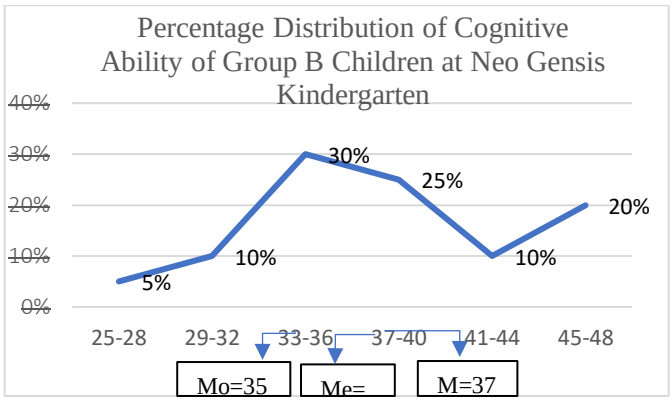

Figure 4. Distribution Chart of the Number of Cognitive Scores of Children in Cycle I

The figure above shows that value of M = 37.9 > Me = 37.3 > Mo = 35.7. This means that the Mean is located on the right, then the Median is in the middle and Modus on the lift. The curve formed can be seen to be asymmetrical and titled to the right which is called a positive slope. The positive slope shows the most of the number of cognitive ability scores through the application of collaborative learning models in Group B children at Cycle Stage I are at the bottom (Low score) of the distribution of the number of scores obtained.

During the implementation of Cycle I, of course there were several obstacles found, this event was due to the lack of children's confidence in carrying out each learning activity and accompanied by the collaborative learning process which is a new learning model for children and is not yet familiar, so children need to adjust to practicing learning. With

the children's cognitive abilities through collaborative learning models, learning activities are carried out again in the next cycle.

Cycle II

The process of implementing the Cycle II stage begins with a brief review of the themes that have been determined and children's understanding during learning takes place at the Cycle I stage. The process of implementing learning activities through collaborative learning models in improving children's cognitive abilities is continued at the Cycle II stage, because the success criteria at the Cycle I stage have not reached the minimum criteria of 80% of the number of students. Therefore, the Cycle II research stage is carried out to achieve the minimum criteria that have been determined.

Table 4. Data on Children's Cognitive at the Cycle II Stage

Category	Total	Percentage	Criteria	Total	Mastery Percentage
Very Low	2	10%	Not Completed	3	15%
Low	1	5%			
Medium	8	40%	Completed	17	85%
High	6	30%			
Very High	3	15%			
Total	20	100%		20	100%

In the table above, it can be seen that there was a significant increase in cognitive abilities at the Cycle II stage, the number of children who reached the completion criteria reached 17 children (85%), and 3 children (15%) were not able to reach the completion criteria.

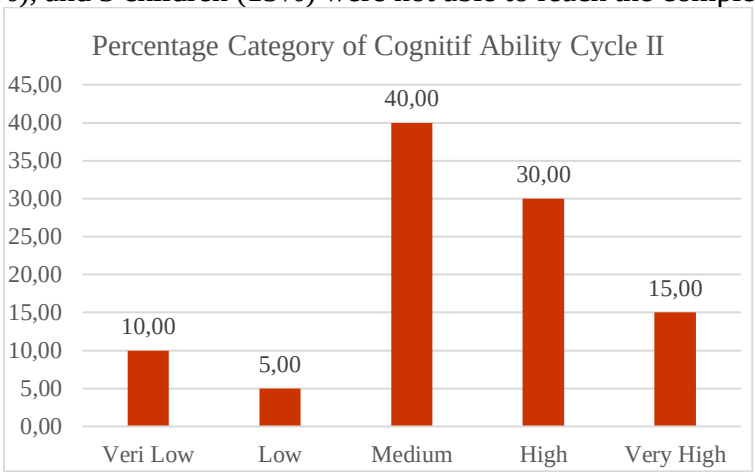

Figure 5. Percentage of Children's Cognitive Ability at the Cycle II Stage

Based on Figure 5, it can be seen that cognitive abilities through the collaborative learning model have increased in Group B Children of Neo Genesis Kindergarten, the percentage of mastery obtained from 20 Group B children, namely 2 children (10%) get a very low category, 1 child (5%) gets a low category, 8 children (40%) reach the medium category, 6 children (30%) are in the high category, and 3 children (15%) who reach a very high category.

Furthermore, the results of descriptive statistical analysis at the Cycle II stage obtained the average percentage of children's cognitive abilities through collaborative learning

models, namely Mean (M = 45.3) < Median (Me = 45.5) < Modus (Mo = 52.18) which is displayed on the following polygon graph.

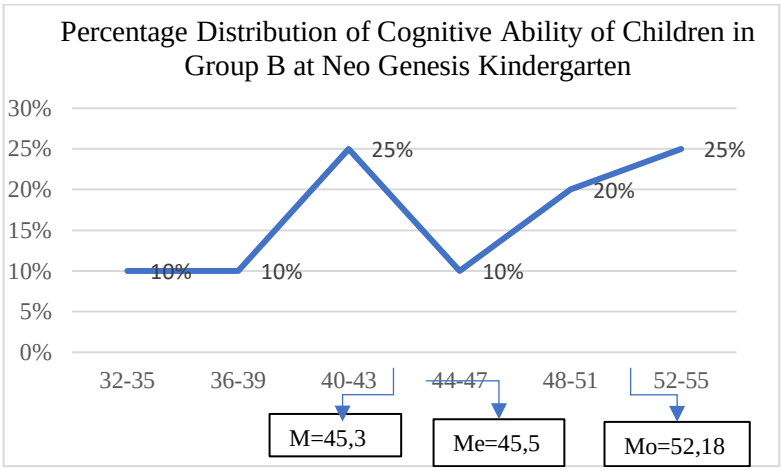

Figure 6. Distribution Chart of the Number of Cognitive Scores of Children in Cycle II

Referring to Figure 6 above, it is known that the value of M = 45.3 < Me = 45.5 < Mo = 52.18. The curve formed slopes to the left so it is called a negative slope. The negative slope indicates that the number of scores improving cognitive abilities in Cycle II Group B children are at the top (highest score) of the distribution of the number of scores obtained.

The implementation of research activities was able to improve the criteria for completeness at the time of the initial observation which only reached 20% (4 children) increased at the Cycle I stage through the collaborative learning model to 45% (9 children), then at the Cycle II stage the cognitive abilities of children increased again to 85% (17 children). This proved to be quite effective in using collaborative learning models to improve cognitive abilities.

The collaborative learning model can improve the cognitive abilities of children in Group B of Neo Genesis Kindergarten. This increase is evidenced by an increase in the percentage of mastery since the implementation of initial observations, continued at the Cycle I stage and up to the Cycle II implementation stage. In accordance with the requirements of success in this study, where the success indicator reaches 80% of the number of children, it can be concluded that the collaborative learning model in improving the cognitive abilities of children in Group B Neo Genesis Kindergarten, and in this activity was completed at the final stage of Cycle II.

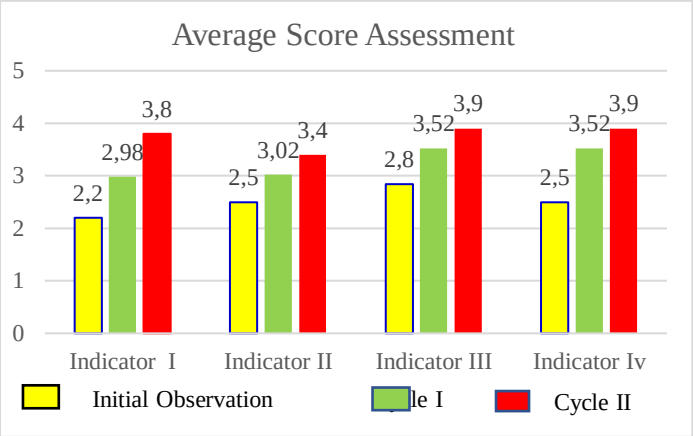

Figure 7. Comparison Chart of the Average Score of Research Indicators on Initial Observation, Cycle I, and Cycle II

The figure above displays the increase in each indicator of children's cognitive abilities through collaborative learning models in each cycle. Through the comparison graph of the average score of indicators at the initial observation stage, Cycle I and Cycle II, it can be seen that the indicator with the highest average score is Indicator III (Sorting numbers) and the indicator with the lowest average score is Indicator I (Classifying objects based on colour, shape and size).

Indicator III gets the highest average score because numbers are things that are often encountered and are part of children's daily experiences (Roliana, 2018), during the learning process children mention numbers as well as sort numbers according to teacher commands. Indicator I gets the lowest average score because the learning process of classifying objects makes children difficult, this is because in doing the activity of classifying objects the majority of children do not pay attention to the information conveyed by the teacher so that when classifying there are some children who are confused in the similarities and differences of objects (Kusbiantari et al., 2022). Despite getting the lowest average score, the average score of Indicator I increased along with the average score of other indicators in each cycle. This proves that the collaborative learning model can improve the cognitive abilities of Group B children as a whole.

The implementation of collaborative learning models in children provides opportunities for children to socialise with their peers, exchange ideas, questions and involve group members actively. With the collaborative learning model, it creates the ability to think critically, work together in solving problems, completing tasks and creating work. With such a learning model, it creates enthusiasm, critical thinking skills, independence and good problem solving in children (Sunismi, 2017). Collaborative learning model activities can train children's cooperation, encourage each other, build interactions, control emotions and respect each other and are expected to improve children's cognitive abilities in the learning process (Sari et al., 2022).

CONCLUSION

Based on the results of research that has been conducted on group B children of Neo Genesis Kindergarten, it can be concluded that the cognitive abilities of Group B children can be improved through a collaborative learning model. At the initial observation stage, the increase in the completeness of children's cognitive abilities reached (20%), and as many as 4 children out of 20 children in the medium and high categories. Furthermore,

in Cycle I, the completeness of children's cognitive abilities increased by (45%), as many as 9 children out of 20 children with details of 9 children got a medium category, none of which reached the high and very high categories. In Cycle II, the percentage of children's cognitive abilities increased to (85%), as many as 17 out of 20 children. The percentage of completeness in Cycle II exceeds the predetermined minimum completeness criteria of 80%. Therefore, it can be concluded that the cognitive abilities of children in group B of Neo Genesis Kindergarten at the initial observation stage, Cycle I and Cycle II have increased through the collaborative learning model.

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