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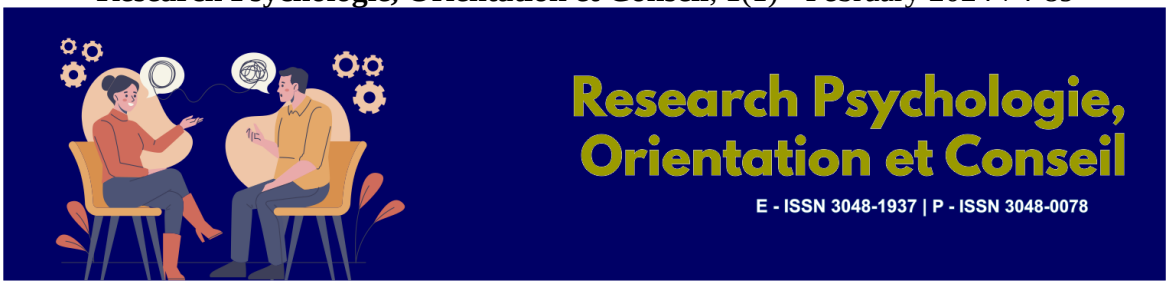

The Effectiveness Of Using Project Methods In Improving Problem-Solving Skills

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ABSTRACT
This research is motivated by the learning process used is still teacher-centered, where learning activities still emphasize reading, writing, and arithmetic. Children have not been able to show a creative attitude in solving problems on their own. Children's curiosity about something new in children is still lacking. The purpose of this study is to test how effective the project method is in improving problem solving skills in Tk Aisyiyah Suliki Fifty City Regency. This study used a quantitative research approach with a quasi-experimental research design with a nonequivalent control group design type. The population in this study is the children of Aisyiyah Suliki Kindergarten, Fifty City Regency for the 2019/2020 academic year, consisting of 2 groups, namely B1 and group B2 which were sampled were group B1 as the experimental group while B2 as the control group. Data collection is carried out by providing pretest and post-test. The results of statistical data analysis that have been carried out, show that alternative hypotheses are H_a accepted. Alternative hypothesis (accepted because it is greater than, can be seen from the results obtained which is 0.73 with a significant level of 1% compared to n magnitude "t" obtained by researchers (= 7.27) and magnitude "t" listed at 2.76 (7.27 > 2.76). Thus, it can be concluded that the project method can improve problem-solving skills in Tk Aisyiyah Suliki Fifty City Regency.

Keywords: *Early Childhood, Problem-Solving Skills, Project Method*

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INTRODUCTION

Early childhood is a child who is just born to the age of six. This age is a very decisive age in character formation (Robledo et al., 2019) and children's personality. Early age is the age at which children experience very rapid growth and development (Kampf et al., 2020), early age is referred to as the golden age. Children at that age have great potential to optimize all aspects of their development (Jia &; von Wirén, 2020). In this golden age there are tremendous changes in the brain and physique of children, so this age is very important for cognitive, affective, psychomotor, social-emotional, moral, religious,

and artistic development (Zampieri, 2020). Therefore, education and the right environment to support early childhood development are needed (Fadillah, 2013: 64)

Early age range is the right time to develop children's potential and intelligence (Cunningham et al., 2021). The targeted development of children's potential in this age range will have an impact on their future lives (ForestPlots.net et al., 2021). Conversely, the development of children's potential that is perfunctory will result in children's potential (Lange et al., 2021) which is far from expectations. When children are included in ECCE institutions, it is inseparable from the goals of parents so that their children can develop their potential (Abe et al., 2019). There are five aspects possessed by children, including aspects of religious and moral values, cognitive aspects, physical-motor aspects, language aspects, and social-emotional aspects.

Piaget (in Santrock 2009: 51) said that the development of cognition (Franke et al., 2019) in early childhood is in the preoperational phase (2-7 years) can be recognized by the child's ability to carry out mental representation activities, namely the ability to present objects, objects, or people and events mentally. This is in line with Permendikbud Number 137 of 2014 concerning National Standards for Early Childhood Education that cognitive development in children aged 4-6 years consists of three parts, namely: learning and problem solving, logical thinking and symbolic thinking.

Basically, cognitive development is intended so that children are able to explore (Richardson &; Plewa, 2020) the world around them through their five senses, so that with the knowledge they get, children will be able to carry out their lives and become complete humans in accordance with their nature as divine beings who must empower what is in this world for the benefit of themselves and others. Furthermore, Piaget (in Santrock, 2007: 243) emphasizes that children actively build (Mehak &; Racine, 2020) their own cognitive worlds, information from the environment is not simply poured into their minds. It determines how children, at different stages in their development, view the world and how systematic change takes place in their minds.

From the presentation, it is known that at an early age children are actively building their own world (Bottanelli et al., 2020). In this case, the child trusts his thoughts more than information that comes from outside or their environment. Children have their own understanding of their world. Problem-solving skills (Gupta &; Deep, 2019) are one aspect of skills that early childhood needs to have, because in everyday life, children will be faced with various problems that require problem-solving skills. This ability is very important for early childhood because it will build the ability to think logically, critically, and systematically.

According to Darsinah (in Ocih setiasih, 2018: 30) problem solving is finding the right way to achieve a goal (Plichta, 2019). Problem solving can also be interpreted as a thought process that includes three activities, namely finding, formulating, and implementing problem solutions. Problem solving should be carried out continuously (H. Wang et al., 2021) and applied to the learning process, so that children's ability to think critically can develop well. Problem solving is useful for developing children's thinking skills (Gess-Newsome et al., 2019) and can improve communication skills both written

and verbal. From the explanation above, it can be concluded that problem solving is a thinking process which includes finding, formulating and implementing solutions to these problems (Zheng et al., 2021). Problem solving emphasizes the effective use of scientific processes by children to conduct an investigation into a particular object or event that occurs in the surrounding environment.

In kindergarten (TK) problem-solving skills in children must be improved to be able to develop cognitive in children. Based on the results of brief observations at Aisyiah Suliki Fifty Kota Kindergarten, on October 30, 2019, it showed that learning emphasizes reading, writing, arithmetic rather than directing children to simple problem-solving activities (Bhuvaneshwari et al., 2019) in their daily lives, children still do not ask about the activity process, when given tasks children are still careless in completing tasks. While other disisi, children are expected to be able to solve their own problems when they are in the midst of society. Another fact found in Aisyiyah Kindergarten is that there are some children who have not been able to solve the problem. This is characterized by children have not been able to show a creative attitude in solving the problems they face, children have not shown their curiosity (Nyberg et al., 2021) towards something new, children have not been able to convey ideas or ways that are different from those that already exist in the learning process. Here it can also be seen that teachers are still dominant in classroom learning. The learning method used is still teacher-centered, where learning activities still emphasize the ability to read, write, and count. In addition, the learning media used does not vary so that it still does not attract children's learning interest.

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From the exposure it is known that at an early age children are actively in building their own world. In this case, the child trusts his thoughts more than information that comes from outside or their environment. Children have their own understanding of their world. Problem solving skills are one aspect of skills that need to be possessed by early childhood, because in everyday life, children will be faced with various problems that require problem-solving skills. This ability is very important for early childhood because it will build the ability to think logically, critically, and systematically.

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solutions. Problem solving should be carried out continuously and applied to the learning process, so that children's ability to think critically can develop well. Problem solving is useful for developing children's thinking skills and can improve communication skills both written and verbal. From the explanation above, it can be concluded that problem solving is a thinking process that includes finding, formulating and implementing solutions to the problem. Problem solving emphasizes the effective use of scientific processes by children to conduct an investigation into a particular object or event that occurs in the surrounding environment.

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In kindergarten (TK) problem-solving skills in children must be improved to be able to develop cognitive in children. One of the learning methods that can be applied in learning to improve (Q. Wang et al., 2019) problem-solving skills in children is the project method (Moeslichatoen, 2004: 140). This is in accordance with the results of research conducted by Ernawulan, Ocih, Faiza Dan Hany (2018: 34) related to the development of early childhood problem-solving skills in project learning in Cimahi City Kindergarten which shows that, after the action is carried out, it appears that the problem-solving ability in children on average is in the good category, this is illustrated by the results of data processing of children's problem-solving abilities in Cimahi City Kindergarten. This shows that the stimulation and selection of the right learning model, namely the use of project methods, can encourage increased problem-solving skills in kindergarten children.

From the results of the research that has been done, it can be concluded that there is an influence of project learning in developing problem-solving skills in children. The project method is a teaching strategy that involves children in learning to solve problems by collaborating with other children, each doing their part of the work individually in small groups to achieve goals that belong together. This idea was developed by William H. Kilpatrich in the project method. The project method is one way of solving problems

that is widely applied in every problem solving experienced in everyday life (Moeslichatoen, 2004: 139). Meanwhile, according to Anita Yus (2012: 174) the project method is one way to provide learning experiences to children. Children are immediately faced with daily problems that require children to carry out various activities in accordance with the given project. From these activities, children gain experiences that will shape behavior as an ability they have.

From the explanation above, it can be seen that the project method is one of the methods of creating a learning environment (Sahu et al., 2021) that can encourage students to develop knowledge and skills optimally in improving their problem-solving abilities. The project method (Praveen Kumar et al., 2019) is one way of providing experience by confronting children with problems faced in their daily lives that must be solved in groups, with this method children will be trained to do their work individually and not depend on their friends or others because there is a separate job that must be done. Using the project method, children gain direct learning experience, both in terms of work and problems they face in everyday life. In the implementation of teaching using the project method in Aisyiyah Kindergarten, the teacher has not implemented the project method in the learning process, even some teachers are not familiar with the project learning method, the teacher should act as a facilitator who must provide tools and materials to carry out projects that are oriented to the needs and interests of children, which challenges children to devote abilities and skills in carrying out parts of the work that are part of them or Group.

RESEARCH METHODOLOGY

Based on the problem studied, namely "The Effectiveness of Using Project Methods (Moein et al., 2020) to Improve Problem-Solving Skills in Tk Aisyiyah Suliki Fifty City Regency, this type of research is quantitative with experimental design in the form of quasi-experiments. According to Sugiyono (2012: 72), the experimental method (Lee et al., 2019) is a research method used to look for the influence of certain treatments on others under controlled conditions. Quashi was experimental with a type of nonequivalent control group design that aims to determine the effect of independent variables on dependent variables after using the project method. Sugiyono (2012:116) stated:

This experimental quasi-design is used because, in reality, it is difficult to get the controversial group (Tu et al., 2020) which is used for research where there are two groups that are not randomly selected and then given a pretest to determine the initial state of whether there is a difference between the experimental group and the control group. In this study, researchers tried to see and reveal the extent of the effectiveness (Raissi et al., 2019) of the project method to improve problem-solving skills in Tk Aisyiyah Suliki Liam Puluh Kota Regency by comparing experimental learning outcomes with control classes. In this research design, the experimental class was given treatment (X), while in the control class with a conventional approach (-).

Data analysis is the most important stage in the completion of a scientific research. The main purpose of data analysis is to summarize the data in an easily interpretable form so that the relationship between the research problem can be studied and tested. Data

analysis is the process of finding and systematically compiling data obtained by organizing data into categories, describing it into units, synthesizing, arranging into patterns, choosing which ones are important and which ones will be studied and making conclusions so that they are easily understood by oneself and others (Sugiyono, 2013: 244).

The data processing technique that the author did was by comparing the average results of the experimental group's pretest posttest using a t-test. Data obtained through data collection activities are basically to test hypotheses or at least answer research problems because the data is necessary to prove the correctness of the hypothesis. To prove whether or not the hypothesis is correct, the collected data needs to be analyzed, namely compiled, arranged, and processed. In actual research, the effect of treatment was analyzed using a t-test.

The form of data processing used is to use statistical processing methods. Data analysis in experimental research generally uses statistical methods, it's just that the use of statistics depends on the type of experimental research used. The data collected is in the form of first test scores and second tests. The purpose of the researcher is to compare the two values by asking the question whether there is a significant difference between the two values. Testing the difference in values is only done against the average of the two values and to do this a technique called t-test (t-test) is used.

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Adapun teknik pengolahan data yang penulis lakukan adalah dengan cara membandingkan hasil Average pretest posttest experimental group using t-test. Data obtained through data collection activities are basically to test hypotheses or at least answer research problems because the data is necessary to prove the correctness of the hypothesis. To prove whether or not the hypothesis is correct, the collected data needs to be analyzed, namely compiled, arranged, and processed. In actual research, the effect of treatment was analyzed using a t-test.

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RESULT AND DISCUSSION

In this chapter, the researcher presents research results that reveal the effectiveness of the use of project methods in improving children's problem-solving skills. The sample of this study was 30 children in Aisyiah Kindergarten, Suliki District, Fifty City Regency and those used as experimental classes were B1 as many as 15 children, and control classes, namely B1 as many as 15 children.

Based on the formulation of the problem and the purpose of the research to see the effectiveness of the project method in improving problem solving skills in Aisyiah Kindergarten, Suliki District, Fifty City Regency. So pretest and posttest were carried out using five research instruments, treatment was carried out 5 times experimental group meetings (B1) consisting of one pretest, three treatments, and ended with one posttest . The control group (B2) only conducted two meetings, namely one pretest meeting and one posttest meeting. Based on the results of pretest data processing, a real problem was found, namely the low ability of children to solve problems, this can be seen from the lack of children's ability to solve problems in learning in groups or alone, there are still many children who are unable to solve problems in making tasks given by the teacher (for example planting plants) and have not been able to carry out activities in accordance with the teacher's instructions.

Related to the problem of problem-solving skills, researchers will present research results related to the effectiveness of project methods in improving problem-solving skills. To start the research activities, based on the instrument grid, an experimental group was first determined, treatment using the project method, and the control group was not given treatment.

Data was obtained from group B1 in Aisyiah Kindergarten, Suliki District, Fifty City Regency with a total of 15 children. The results of the pretest of problem-solving ability can be seen in table 1.1 as follows:

Table 1. Overview of B1 Local Problem Solving Skills in Aisyiah Kindergarten, Suliki District, Fifty City Regency (pretest)

No	Child Code	Items					Total Score	Category
		1	2	3	4	5		
1	AM	2	2	1	1	1	7	CE
2	AA	2	2	1	1	1	7	CE
3	AMZ	2	2	1	1	1	7	CE
4	AN	2	2	1	1	1	7	CE
5	AA	2	2	1	1	1	7	CE
6	AA	2	2	2	1	1	8	CE
7	ATD	2	2	1	1	1	7	CE
8	AAP	2	2	2	2	1	9	MILES
9	AR	2	2	1	1	1	7	CE
10	AA	2	2	1	2	1	8	CE
11	AN	2	2	2	2	1	9	MILES
12	BAS	2	2	2	2	1	9	MILES

13	CJA	2	2	2	1	1	8	CE
14	FPE	2	2	2	1	1	8	CE
15	GP	2	2	2	1	1	8	CE
Sum		**30**	**30**	**22**	**19**	**15**	**116**	
	Average						**7,73**	**CE**

From the table above, the highest score is 9 and the lowest score is 7. Based on the results of the pretest, it can be seen that of the 15 children in the incapable category, there are 12 children and in the underprivileged category there are 3 children, while for the capable and very capable categories there are none, meaning that the ability to solve problems is still low. Furthermore, the summary of the frequency distribution of pretest data on problem-solving skills is arranged in the table as follows:

Table 2. Frequency Distribution of Pretest data for Problem Solving Ability in Aisyiah Kindergarten, Suliki District, Fifty City Regency.

No	Interval Class	Frequency	Percentage (%)	Category
1	17-20	-	-	BC
2	13-16	-	-	M
3	9-12	3	20%	MILES
4	5-8	12	80%	CE
	Sum	**15**	**100%**	

Based on table 4.2, it can be concluded that in the experimental group pretest data, no child has been able to solve the problem well. 12 children were at 80% in the indigent category and 3 children with a percentage of 20% in the less able to solve problems. For more details can be seen based on chart 4.1 below:

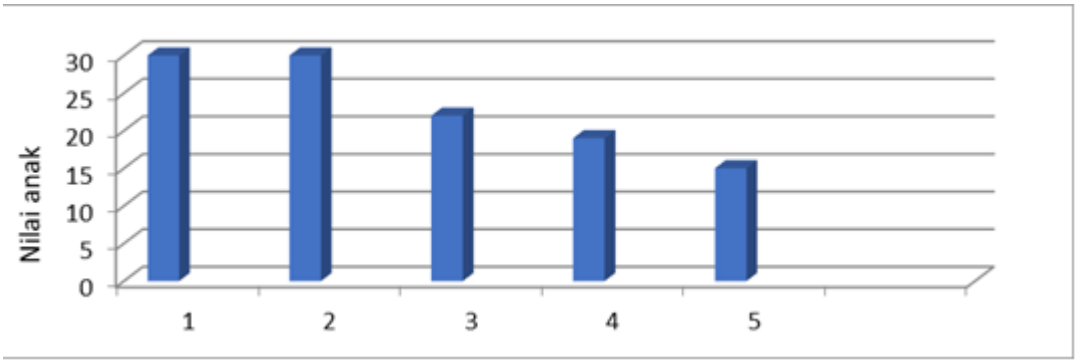

Figure 1. Problem Solving Skills in Aisyiah Kindergarten, Suliki District, Fifty City Regency (pretest).

1. Control Group Pretest Data Results

Data obtained from group B2 in Aisyiah Kindergarten, Suliki District, Fifty City Regency with a total of 15 children, can be seen in table IV.3 as follows:

Tabel 3. Overview of B2 Local Problem Solving Skills in Aisyiah Kindergarten, Suliki District, Fifty City Regency (pretest)

No	Child Code	Butir Item					Total Score	Category
		1	2	3	4	5		
1	DG	2	1	1	1	1	6	CE
2	. .GZ	2	2	1	1	1	7	CE
3	JA	2	1	1	1	1	6	CE
4	MILES	2	2	2	2	1	9	MILES
5	KSS	2	2	1	1	1	7	CE
6	MA	2	1	1	1	1	6	CE
7	MA	2	2	1	1	1	7	CE
8	MSA	2	2	1	1	1	7	CE
9	RI	2	1	1	1	1	6	CE
10	RA	2	1	1	1	1	6	CE
11	..RM	2	2	1	1	1	7	CE
12	RN	2	1	1	1	1	6	CE
13	HKL	2	1	1	1	1	6	CE
14	ANP	2	2	2	2	1	9	MILES
15	MOA	2	1	1	1	1	6	CE
Sum		**30**	**22**	**17**	**17**	**15**	**101**	
Average							**6,73**	

From the table above, the highest score is 9 and the lowest score is 6. Based on the results of the pretest, it can be seen that out of 15 children there are 13 children in the incapable category and there are 2 children who are in the underprivileged category, while for the capable and very capable categories there is none, meaning that the child's problem-solving ability is still low. Furthermore, the summary of the frequency distribution of pretest data on problem-solving skills is arranged in the table as follows:

Table 4. Frequency Distribution of Pretest Data for Problem Solving Ability in Aisyiah Kindergarten, Suliki District, Fifty City Regency.

No	Interval Class	Frequency	Percentage (%)	Category
1	17-20	-	-	BC
2	13-16	-	-	M
3	9-12	2	13,33%	MILES
4	5-8	13	86,67%	CE
Sum				

Based on table 4.4, it can be concluded that in the experimental group's pretest data, there has not been a good improvement in problem-solving skills. 13 children with a percentage of 86.67% whose problem-solving ability belonged to the category of Incapable and 2 children with a percentage of 13.33% in the category of less able to solve problems. For more details can be seen based on chart IV.4 below:

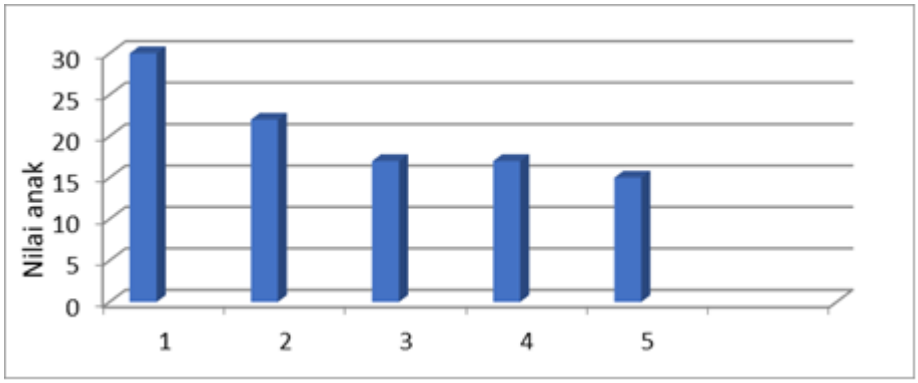

Figure 2. Problem Solving Skills in Aisyiah Kindergarten, Suliki District, Fifty City Regency (pretest).

From the results of the Pretest group B2, it can be seen how the ability to solve problems before being given treatment, namely children are still unable to solve problems. For more details can be seen from table IV.5 below:

Table 5. Overview of Pretest Data Results Problem-solving Ability of Experimental and Control Groups

NO	Experimental Group		Control Group	
	Child Code	Total Score	Child Code	Total Score
1	AM	7	DG	6
2	AA	7	.GZ	7
3	AMZ	7	JA	6
4	AN	7	MILES	9
5	AA	7	KSS	7
6	AA	8	MA	6
7	ATD	7	MA	7
8	AAP	9	MSA	7
9	AR	7	RI	6
10	AA	8	RA	6
11	AN	9	.RM	7
12	BAS	9	RN	6
13	CJA	8	HKL	6
14	FPE	8	ANP	9
15	GP	8	MOA	6
Sum		**116**	**Sum**	**101**
Average		**7,73**	**Average**	**6,73**

Based on the table above, the highest value is 9 and the lowest value is 6. With an average in the experimental group of 7.73 and an average in the Control group of 6.73. For more details can be seen based on chart IV.3 below as follows:

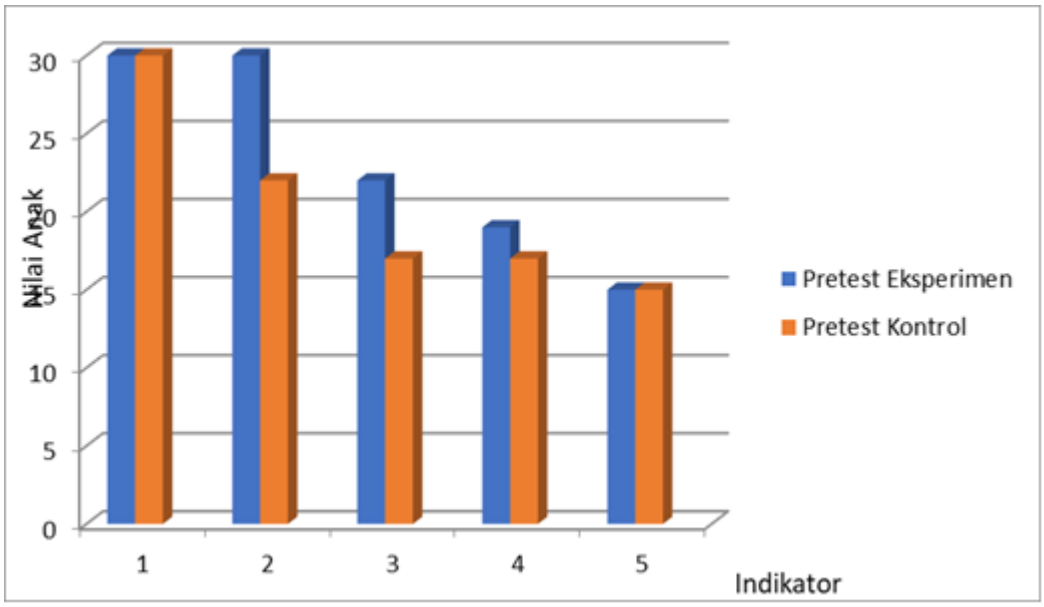

Figure 3. Comparison of Problem Solving Skills in Aisyiah Kindergarten, Suliki District, Fifty City Regency

Based on the research that has been done, it shows that the alternative hypothesis is H_a accepted. Alternative hypothesis (accepted as greater than . With a significant level of 1% comparing the magnitude of "t" obtained by researchers (= 7.27) and the magnitude of "t" listed at 2.76 (7.27 > 2.76). This means that H_a)t_o t_t t_o t_tthe project method can make problem-solving skills effective at a significant level of 1%. The results between the pretest and posttest showed that the problem-solving ability score in Aisyiah Kindergarten, Suliki District, Fifty City Regency, increased after treatment using the project method. This can be seen from the results of the posttest that the researchers did, namely the posttest value with an average of 16.60, and comparing the magnitude of the "t" that the researcher obtained (= 7.27) and the magnitude of the "t" listed at 2.76 (7.27 > 2.76).ini means that the t_o t_tproject method can be done to streamline the ability to solve problems at a significant level of 1%. The improvements that occur prove that project methods can be performed for problem-solving skills.

Based on the results of the study, it was found that the project method with explanations, according to the theme, can improve problem-solving skills. It can be seen that when doing the pretest, the problem-solving ability was in the incapable category as many as 15 children and it was all children from group B1 in Aisyiah Kindergarten, Suliki District, Fifty City Regency, when doing the posttest, problem-solving skills increased, which was in the very capable category, there were 8 children and in the capable category, there were 6 children.

Furthermore, the comparison of the posttest results of the two experimental groups and the control group, the highest score of the experimental group was 10 with an average of 16.60 while the average control group was 10.13 with the highest value of 11. The highest scores in the experimental group and the control group were different. The role of the teacher as an executor when starting and ending learning has been carried out well. The lowest value in the experimental group was 14 there were 2 children, and in the

control group which was a value of 7 there was 1 child. The lowest scores in both groups were not too significant, this is because there are still children who are less able to solve problems in the learning process, such as many children who play in learning, do not understand what he will do. This is due to the media and methods used that do not attract children's interest in improving problem-solving skills in the learning process.the use of interesting and effective learning methods will attract children's attention to learn and focus on the material provided. According to Moeslichatoen (2004: 137) has an understanding of project methods, namely:

The project method is one way of providing experience by confronting children with everyday problems that must be solved in groups. The project method comes from Jhon Dewey's idea of the concept of "learning by doing", which is the process of obtaining learning outcomes by doing certain actions in accordance with their goals, especially the process of mastering children about how to do a job consisting of a series of behaviors to achieve goals.

From the explanation above, it can be understood that the project method will provide experience to children on the problems they face in everyday life which must be solved in groups. Lipton & Hubble, (2005: 80) explain the benefits of the project method, namely: Children tend to be more successful with a variety of learning tasks, they improve problem-solving and decision-making skills by sharing strategies with other friends, they are more articulate and clearer in terms of verbal expression, they increase positive feelings about themselves and school in general. However, to reap these benefits, small group work must be very well organized, group processes must be taught and instilled.

The description above explains that the method is an important thing in learning because it will attract the attention of children who can improve problem-solving skills in learning so that the material taught can be implemented properly and appropriately. As for children's problem-solving abilities, emphasis is placed on thinking about how to solve problems and process information. According to Kennedy in (Mulyono, 2009: 257) suggests four steps of the problem-solving process, namely: understanding the problem, designing the problem, implementing the problem-solving, and re-examining.

So based on the above description it is concluded that the null hypothesis (which states that the use of project methods is not effective in improving problem-solving skills is rejected. Meanwhile, the alternative hypothesis) that states that the use of project methods is not effective in improving problem-solving skills is accepted. This means that the project method is effective in improving problem-solving skills in Aisyiah Kindergarten, Suliki District, Fifty City Regency at a significant 1%. During 〖(H〗_0 〖(H〗_a the first to third treatment, there were several children who were able to carry out activities well in carrying out the process of planting plants using the project method.

CONCLUSION

Based on the results of research at Aisyiah Kindergarten, Suliki District, Fifty City Regency on the effectiveness of project methods to improve problem solving skills, it can be concluded that: Effective project methods to improve problem solving skills in

accordance with problem solving stability indicators, namely showing activities that are exploratory and probing, solving problems in daily life flexibly and socially acceptable, apply new knowledge and experience, show a creative attitude in solving problems. Children's problem-solving skills improved after being treated with project methods. This can be seen from the average score comparison between pretest and posttest, namely the average pretest 6.73 and the average postest 10.13. The project method is effective in improving the problem-solving ability of grade B1 children at Aisyiyah Suliki Kindergarten, Fifty City Regency at a significant level of 1%, namely 7.27>2.76.

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