

Research Article

The Influence of the Beyond Centers and Circles Time (BCCT) Approach and the DRILL Method on Children's Cognitive Development in PAUD Ambon City

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Abstract.

This research aims to determine the effects of the drill method, the BCCT approach, and a combination of both (the drill method and BCCT approach) in improving children's cognitive development in PAUD Ambon City. This research uses an ex po facto research design. The subject of this research is the grades of Xaferius Kindergarten students in Ambon City in 2022 using the drill method on 15 students in the age group of 5-6 years. The learning outcomes of 25 students involved in this research was studied. The subjects in this research were homogeneous according to the characteristics of the learning method. The data were collected through 1). The scores obtained by students in the school on the pretest. 2). Conduct the treatment during 6 meetings. 3). Conduct the post test. In this research, the data collected was analyzed using analytical techniques: 1). Descriptive analysis was used to describe inferential variables, and 2). In inferential statistics, the level of students' cognitive development of students who were given BCCT treatment was higher compared to the group of students who were given drill method treatment. Through the test criteria, if $t_{count} \leq t_{table}$ then H0 is accepted, it turns out $t_{count} \leq t_{table}$, is $-23,216 > 0.000$, so H0 is rejected and H1 is accepted. Where the calculated t value is greater than the r table, it indicates that there are differences between the two groups so that the BCCT learning approach is good to use in developing the cognitive development of children aged 5-6 years.

Keywords: beyond centers and circles time (BCCT) approach, drill method, cognitive development

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1. Introduction

In line with that, the law No. 20 of 2003 concerning the national education system. which in one chapter emphasizes that early childhood education is a coaching effort aimed at children from birth to the age of six which is carried out through providing educational stimulus to help the growth and the development of physical and spiritual so that



children have their preparation to enter the further education. The urgency of need for early education is also triggered by the results of the latest research which concludes that intellectual development occurs very rapidly in the early years of children's life.

The learning process of early childhood education requires the use of methods, approaches, and learning media in order to achieve better and more quality learning outcomes in improving children's progress as the preparation to continue the further levels of education. The use of the drill method and the BCCT approach are often applied in the learning process but so far it was still not optimal. In implementing the use of drill method and the BCCT approach in learning, educators are expected to have knowledge in using this approach because in the implementation process, the children are accustomed to learn through playing using learning stages which known as the center in a circle or learning by applying the footholds, namely footholds before playing, footholds to play and footholds after playing which are implemented through learning while playing in a calming way.

based on findings in the field, learning at the early childhood education level in Ambon city shows that most of the educators have not been optimal in implementing the BCCT approach in creating learning through playing so the children's cognitive abilities need to be stimulated properly in order to think, create the creativity, the ability to correlate, assess and consider something. Children's cognitive development aims to improve thinking abilities in order to equip children for their further life.

According to Shvoong (2011) the drill method or called practice is a teaching method where the students are directly invited to a skill/experimental training place, such as to see how to make something, how to use it, what it is made for, what its benefits are, and so on. The drill method or ready practice is intended to gain dexterity or practice skills for what is being learned, because only by doing it practically, the knowledge can be perfected.

The approach of beyond centers circle time (BCCT) or known as seling, centers and circles is one of the ideal learning approaches to be implemented in the early childhood learning process. According to Gutomo, the BCCT approach is a learning process in early childhood education which is centered on a play area or centered by providing a foothold according to the children's needs and development, in which it provides a foothold before and after playing, students and educators form a circular position.

According to Jean Piaget, quoted by Novan Ardy Wiyani, he believes that children's thinking develops according to stages or periods that continue to become increasingly complex. The stages of cognitive development according to Piaget are sensor-motor (0-2

years), pre-operational (2-7 years), concrete operational (7-11 years), formal operational (11-adult) 25 if seen from the stages of cognitive development, then early childhood was at the sensor-motor and pre-operational stages. At this stage, the speed of child's development is very good if the stimulus provided is in accordance with the growth and development of children at their age.

2. Method

2.1. Research design

This research uses an ex-post facto research design. Ex-post facto research aims to find out the possible causes of changes in behavior, symptoms or phenomena caused by an event, behavior or other things that cause changes in the independent variables which as a whole has already occurred (Wiersma, 1995:139, Tukman 1999).

2.2. Research Subjects

The subject of this research is the Xaferius Kindergarten in Ambon City. determining the sample in this research is carried out in two stages: Firstly, comparing the value of learning outcomes carries out in 2022 using the drill method while the BCCT method takes learning outcomes using an experimental approach in 2023. Secondly, determining learning outcomes of the all students from the school. Their learning results will be taken as comparison.

2.3. Research Variable

This research variable consists of one independent variable, one dependent variable, two moderator variables.

Independent variable: (X1)

BCCT approach, and

drill method: (X2)

2.4. Research Procedure

2.4.1. Experimental preparation stage

At this preparation stage, the activities are: (1) selecting teaching materials according to the needs of kindergarten students aged 5-6 years. (2) compiling learning scenarios according to the learning methods that will be used (BCCT and drill methods), (3) compiling student worksheets, and (4) compiling cognitive ability assessment instruments.

2.4.2. Research implementation stage

This research is conducted from June to July 2023. The research procedure consisted of: a) giving a pretest, b) conducting the treatment (experiment), giving a posttest-pretest (observation of cognitive abilities using oral questions) once at the beginning of meeting to find out the extent of the ability to recognize and use symbols, recognize the identity, understand the cause and effect, be able to classify, recognize the numbers, empathy, etc. The children taught have been mastered by the students. Judging from its function, this pretest is in the form of an observation sheet taken from the learning materials that will be presented. The treatment is conducting twice a week with the same time and materials.

2.4.3. Final Stage of Research Implementation

After giving the treatment, both groups are given a final assessment, through observation of cognitive abilities. The final assessment is made with the aim of knowing the achievement or mastery of the material that has been taught to children, both the experimental group and the control group. The final assessment guidelines are the same as the first assessment guidelines. The results of the development assessment in this research are aimed at cognitive aspects, whereas all data is collected and analyzed to see the influence of research variables.

2.5. Research Instrument

Instruments are certain tools or means used to obtain or collect data needed in order to solve the problem to be researched or achieve research objectives, either in the form of assessment guidelines or other equipment.

2.6. Data collection technique

Data collection is a systematic and standard procedure to obtain the required data. There is always a relationship between data collection techniques and the research problem to be solved.

2.7. Data analysis technique

In this research, the data collected is analyzed using analytical techniques: 1) Descriptive analysis to describe inferential variables, and 2) Inferential statistics.

2.8. Statistical Hypothesis

The statistical hypothesis in this research is formulated as follows:

$$H_0 = \mu_1 = \mu_2$$

$$H_1 = \mu_1 > \mu_2$$

3. Results And Discussion

3.1. Research result

3.1.1. Validity Test

Testing the validity of this research uses Bivariate Pearson correlation (Pearson Moment Product). Analysis of validity testing in this research uses the SPSS for Windows 24.0 program using a two-sided test with a significance level of 0.05. The testing criteria are as follows: If $r_{count} \geq r_{table}$, then the instrument is valid. Meanwhile, if $r_{count} < r_{table}$, then the instrument is invalid.

Based on the validity test calculation table, it is obtained that r_{table} for the total of 22 respondents is 0.420 and the results of the r_{count} assessment show the instrument statement from the 20 statement items tested by the researcher who takes 13 statement items of 1, 3, 4, 5, 6, 7, 8, 10, 11, 14, 17, 18, 20 are said to be valid while the statements of 2, 9, 12, 13, 15, 16 and 19 are said to be invalid.

Reliability testing is used to determine the consistency of the measuring instrument, whether the measuring instrument used is reliable and remains consistent if the measurement is repeated. In this research, Cronbach's Alpha is used with the help of the

TABLE 1: Validity Test Results.

Question	R count	Remarks
Item_1	0,531	Valid
Item _2	0,371	Invalid
Item _3	0,478	Valid
Item _4	0,606	Valid
Item _5	0,437	Valid
Item _6	0,581	Valid
Item _7	0,575	Valid
Item _8	0,593	Valid
Item _9	0,205	Invalid
Item _10	0,482	Valid
Item _11	0,729	Valid
Item _12	0,317	Invalid
Item _13	0,153	Invalid
Item _14	0,643	Valid
Item _15	0,361	Invalid
Item _16	0,320	Invalid
Item _17	0,468	Valid
Item _18	0,497	Valid
Item _19	0,367	Invalid
Item _20	0,425	Valid

SPSS for Windows 24.0 program. The instrument reliability test calculations can be seen in Table 2 as follows:

TABLE 2: Reliability Test.

Cronbach's Alpha	N of Items
0.825	13

The instrument is said to be reliable if $r_{11} \geq r_{table}$, the r_{table} obtained for the total of 22 respondents is 0.420. Based on the results of the reliability test in the table above, the Cronbach's Alpha results are $0.825 \geq 0.420$, so it can be stated that the research measuring instrument is consistent or reliable. Then a measure of central tendency is sought which includes the average (mean), middle value (median), frequently occurring values (mode), measures of variation in the group range (range) and standard deviation (SB). Further calculations can be seen in Table 3, as follows:

TABLE 3: Data Description of Cognitive Development Values for Children Aged 5-6 Years.

Statistics Experiment_Class			Statistics Control_Class		
N Valid	13		N Valid	13	
Missing	0		Missing	0	
Mean	75.00		Mean	67.1176	
Median	75.00		Median	67.0000	
Mode	75		Mode	64.00	
Std. Deviation	7.482		Std. Deviation	7.430	
Range	20		Range	20	
Minimum	65		Minimum	65	
Maximum	85		Maximum	75	

From the table above, it is a calculation using SPSS (statistical product and service solution) for Windows release 21. The treatment which is conducted to the experimental class using center and circle approach learning or BCCT obtains; a mean score is 75.00, median is 75.00, mode is 75, Standard Deviation is 7,482. It is also obtained that the maximum score in the experimental class is 85 and the minimum score is 65, so the range is 20. Furthermore, the test results given to the control class using the DRILL Method indicate that the mean score is 67.11, median is 67.00, mode is 64, and SD is 7.430. The maximum score in the control class is 75 and the minimum score is 65, so the range is 20.

3.2. Prerequisite Test

3.2.1. Normality Test

The normality test for this research uses the Liliefors test with the help of the SPSS for Windows 24 program and a significance rate of 5%. In this research, normality testing is implemented to test the normality of the experimental class and the normality of the control class for the cognitive development of children aged 5-6 years. The hypothesis tested is as follows:

H₀ = the data used is based on a normally distributed population

H₁ = the data used is based on a normally distributed population

3.2.2. Experimental Class Normality Test

Based on the results of normality testing using the SPSS for Windows 24 program, it can be seen that the L count for the experimental class is 0.148. Then Lcount is compared with $L_{table} = (5\%) = 0.482$. because $L_{count} < L_{table}$ then H_0 is accepted, so it can be concluded that the experimental class comes from a normal distribution.

3.2.3. Control Class Normality Test

Both classes, namely the experimental class and the control class, can be seen that Lcount is smaller than L_{table} , so it can be concluded that H_0 is accepted, the data comes from a normally distributed population.

3.2.4. Homogeneity Test

The calculation results for homogeneity testing obtained $L_{count} = 0.828$ from the df distribution table with a significant level $L_{table} (5\%) = 0.425$. Because $L_{count} \leq L_{table}$ ($0.050 \leq 0.828$), then H_0 is accepted or in other words the second variant of the population is homogeneous.

3.2.5. Statistical Hypothesis Testing

The results of the t-test calculation can be seen in Table 4 as follows:

TABLE 4: Paired Samples Test.

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre Test - Post Test	-48.86364	9.87202	2.10472	-53.24064	-44.48663	-23.216	21	.000

From the table above, we get $t_{count} -23.216$ using the t distribution table with a significance level of 5%, we get $t_{table} 0.000$. Through the test criteria, if $t_{count} \leq t_{table}$ then H_0 is accepted, it turns out $t_{count} \leq t_{table}$ is $-23,216 > 0.000$ so H_0 is rejected and H_1 is accepted. Based on the T-Test test results, it can be concluded that H_1 is accepted, which means that the average cognitive development of students using the BCCT learning approach is not the same as the average cognitive development of

students using the DRILL Method. It indicates that there is a higher influence of the BCCT learning approach on the cognitive development of children aged 5-6 years at Xaferius Kindergarten.

It can be seen from the analysis calculations using the SPSS version 24.0 for Windows program, it is known that the t value in the SPSS output after carrying out the Independent Samples Test t-test analysis is -23,216, using the t distribution table with a significance level of 5%, the t table is -23,216. Through the test criteria, if $t \text{ count} \leq t \text{ table}$ then H_0 is accepted, it turns out $t \text{ count} \leq t \text{ table}$ is $-23,216 > 0.000$ so H_0 is rejected and H_1 is accepted. Where the calculated t value is greater than the r table indicating that there are differences between the two groups so that the BCCT learning approach is good to use in developing the cognitive development of children aged 5-6 years.

4. Conclusions

Based on the results of the research, the testing of the data analysis and the discussion that have been described in chapter IV, so it can be concluded from the formula of the problem that was previously described. That this study, at the study of the BCCT approach and the DRILL method, is affecting the cognitive development of 5-6 years old kindergarten trainee Xaverius Ambon in class of B1. The cognitive growth rate of trainees given at the BCCT is higher than the practice group received for the DRILL method treatment. This can be seen from the analysis of the SPSS version 24.0 for Windows' assistance program is known to value the t in the SPSS output after independent tested t-23,216, using t distribution tables at a considerable degree 5% obtained from t table -23,216. According to the test criteria if t count was found out that count was accepted, it turned out that t count t table were $-23,216 > 0,000$ and therefore H_0 was rejected and H_1 was accepted. Where in a higher t-count value than are tables marked that between the two groups there is a difference so good BCCT approach learning is used in developing cognitive development of kids ages 5-6.

5. Recommendations

5.1. To educators

Teachers are expected to pay constantly attention to the development of trainees so that the teachers as educators can know how important early child development is,

especially cognitive development. One of the learning approaches keeps learners actively involved in the learning process, one of which is with the BCCT learning approach and the DRILL method. Learners are directed to apply growth in the real world to something concrete that trains learners to think logically and nurture a higher passion for learning.

5.2. To the school

Schools should seek to provide better facilities and create an atmosphere of learning using approaches that can encourage active, creative and innovative learning. One is by opposing the BCCT approach and the DRILL method for early cognitive development.

5.3. To further researchers

This research may be used as a guide for other researchers for further research, suggested by other studies for further research, suggested by others to develop a BCCT approach and a specific DRILL method. Top of Form

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