Original Research Article

The Implementation of BERAKSI Learning Model to Improve Aspects of Child Growth and Development in Early Childhood Education (ECE) Institutions

ABSTRACT

Early Childhood Development is very important to shape the character, intelligence, and social skills of children that will have a significant impact on their future. The main objective of this study was to measure the effectiveness of the implementation of the BERAKSI model (playing, creative, discussing and cheerful) on aspects of child development, and to identify factors that support or inhibit the implementation of the model. The research design used a quasi-experimental approach with control and experimental groups. This study was conducted in several Early Childhood Education (ECE) in Bulukumba Regency, where the experimental class implemented the BERAKSI model, while the control class used conventional learning methods. Data collection methods included observation, interviews with teachers, and pre-tests and post-tests to measure child development before and after the implementation of the model. Statistical tests were used to analyze significant differences between the two groups. The results showed that the BERAKSI model significantly improved aspects of child development compared to conventional methods. The average growth value in the experimental group was 62.49 higher, compared to the conventional method of 44.17. This shows the effectiveness of this model in supporting overall child development. Therefore, this study explains that the BERAKSI model is effective in optimizing aspects of child growth and development in early childhood education. This model can also be adopted more widely in ECE in Indonesia. The implications of this study are the need for further training for ECE teachers to implement the BERAKSI model effectively, as well as support from the government and the community to facilitate the implementation of this model.

Keywords: Implementation; BERAKSI model; Early Childhood; Child Development

1. INTRODUCTION

Early childhood education (ECE) is an important foundation in shaping children's character and development in the future (1–3). In Indonesia, attention to early childhood education has increased in recent years, along with awareness of the importance of this early period of life as a golden age in child development. In this phase, children are at a stage of cognitive, social, emotional, and physical development that is critical to their future. Therefore, the quality of education they receive at this stage has a significant impact on their ability to face future challenges (4). The development of aspects of early childhood development is an essential

foundation in the formation of children's character, intelligence, and social skills that will affect their quality of life in the future (5). Early childhood education in Indonesia faces various challenges, including limited resources, lack of teacher training, and learning methods that are not fully able to accommodate the needs of children's development holistically (6–8). In this condition, there is an urgency to implement a more adaptive and innovative learning model, to ensure that every child has the same opportunity to develop optimally.

The BERAKSI (Play, Creative, Discussion, and Playful) learning model was developed as an answer to this challenge. The model is designed to integrate different aspects of child development through a fun and interactive approach. The BERAKSI approach emphasizes the importance of play-based, creative, discussion, and positive experiences designed specifically for early childhood (9). Through the application of this model, it is hoped that children will not only develop cognitively, but also in social, emotional, and physical aspects. Thus, the application of the BERAKSI model is expected to be able to make a significant contribution to improving the quality of early childhood education.

The development of the BERAKSI learning model is based on several relevant theories of education and child development and underlies the application of the BERAKSI learning model as stated by Jean Piaget that children learn through active interaction with their environment (10–12). Likewise, Lev Vygotsky introduced the concept of Zone of Proximal Development (ZPD), which emphasizes the importance of social interaction in learning (13,14). According to Vygotsky, children learn most effectively when they interact with more competent adults or peers, which helps them achieve a higher level of understanding (4,15,16). And Constructivism, pioneered by Piaget and expanded by Vygotsky, argues that children build their own knowledge based on their experiences (17,18). The BERAKSI model supports learning based on play and exploration activities, which allows children to develop their thinking abilities through hands-on experience (19). That is accompanied by a discussion component, encouraging social interaction between children and teachers or peers, which can improve the child's cognitive and social development (20,21). Piaget's theory of cognitive development emphasizes that children are in a pre-operational phase (2-7 years) during early childhood, where they begin to use symbols and think intuitively, but are not yet able to think logically (22). In this context, the BERAKSI model supports learning based on play and exploration activities, which allows children to develop their thinking skills through hands-on experience. Then the play component is a major part of the learning process, which allows children to learn in an environment that supports creativity, imagination, and social interaction, as well as emphasizing a cheerful and supportive environment, which can help children feel safe and valued, so that they can develop important social and emotional skills (23,24).

Many studies have been conducted to explore BERAKSI learning models in improving aspects of child growth and development in early childhood education institutions. which is relevant to the BERAKSI learning model, namely a study conducted (25–27). Found that structured and interactive play can improve language skills, problem-solving, and social skills in early childhood. This research supports the "Play" component of the BERAKSI model, which is designed to create a learning environment that supports the holistic development of children. (28,29). showed that children's involvement in art activities improves their ability in critical thinking, problem-solving, and self-expression. The "Create" component of the BERAKSI model focuses on this aspect, with the aim of facilitating the development of children's creative and through a variety of artistic activities (30,31)

Although the BERAKSI learning model shows great potential in improving the quality of early childhood education, there are gaps in the literature underlying the implementation of this model. Research on the effectiveness of this model is still limited, especially in the context of early childhood education in Bulukumba Regency. Therefore, this study is directed to answer several main problems, including: How the BERAKSI model can be effectively applied in early childhood education institutions in Bulukumba Regency, then the factors that affect the

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successful implementation of the BERAKSI model in improving aspects of child development, and the response of teachers and students to the application of the BERAKSI model in learning, as well as the impact of the implementation of the BERAKSI model on cognitive development, social, emotional, and physical child. This research has the potential to make a significant contribution to the field of early childhood education, especially in the context of developing innovative learning models. Among them, it can make an important contribution to the development of early childhood education theory and practice. By exploring and testing the effectiveness of the BERAKSI model, this study can provide new insights into how creative and interactive activity-based learning models can improve the quality of early childhood education. Then it can be a practical guide resulting from this research can be a reference for teachers and education practitioners in designing and implementing more effective learning models and can be the basis for decision-making in formulating educational policies that support the implementation of innovative learning models in early childhood education institutions.

2. METHODS

Research Design

This study uses a quasi-experimental design that aims to evaluate the effectiveness of the BERAKSI learning model in improving aspects of child development in early childhood education institutions (32,33). In this design, the experimental group and the control group will be used to identify differences in child development outcomes after the application of the BERAKSI model. The n-gain difference test was used to measure the increase that occurred in the experimental group compared to the control group (34,35).

$$N - Gain = \frac{\text{Skor Posttest} - \text{Skor Pretest}}{\text{Skor Maksimal} - \text{Skor Pretest}}$$

The N-Gain value ranges from 0 to 1, where: 0 indicates no improvement. 1 indicates maximum improvement. Based on the calculation results, N-Gain is categorized into three levels (36).

Table 1. N-Gain effectiveness criteria

1	Low (N-Gain < 0.30):	Indications that the improvement in learning outcomes is minimal or insignificant.
2	Medium (0.31 ≤ N-Gain < 0.70):	Shows a significant increase, but not yet optimal.
3	High (N-Gain ≥ 0.71):	Shows significant and optimal improvement.

Location and Subject of Research

This research was carried out in four ECE institutions in Bulukumba Regency, South Sulawesi. Namely Pembina Ujung Bulu State Kindergarten, Al Uswah Loka Kindergarten, Melati Topanda Kindergarten and Bontomanai Kindergarten The location selection is based on demographic representation and the availability of supporting facilities for the implementation of the BERAKSI model. The subjects of the study are children aged 4-6 years who are registered in these early childhood education institutions. The characteristics of the research subjects include various socio-economic backgrounds and family environments, which is expected to provide a comprehensive overview of the effectiveness of the BERAKSI model in various conditions

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Research Instruments

The instruments used in this study include interviews, and observations (37,38). Interviews were conducted with teachers and parents to get their perspectives on the impact of the BERAKSI model on child development, as well as the challenges faced during the implementation of the BERAKSI Observation was used to directly observe the learning process applied in the BERAKSI model, as well as children's behavior and response to this learning method.

Table 2. Instrument of child assessment aspect

Number	Assessed aspects
	Components of Play
1	Can play in the classroom and outside the classroom
2	Can role-play with the theme of "washing hands quickly".
3	Can play gymnastics.
4	Can play games with the theme of "healthy food" and play the role of a small chef
5	Can play a hot ball game while the music is playing and continue until only one child is left.
6	Can do garbage labor games
7	Can role-play with the theme of doctors.
	Creative Components
8	Able to create works made by children themselves and according to their ideas/interests using the available tools and materials.
9	Can make scribbles, hold stationery, mewanai, print, shape, plagiarize etc.
10	You can mention the steps to wash your hands by looking at the picture.
11	You can name simple photo frames, ranging from small to walking.
12	Dapar draws with the theme of cleanliness
13	Can read poster images to maintain health.
	Components Discussed
14	Able to hear and distinguish sounds of simple sounds, words and sentences
15	Can introduce yourself
16	Can discuss brushing teeth
17	Can tell stories about healthy and unhealthy foods.
18	You can ask and answer questions about the benefits of exercise.
19	Able to interact and practice in maintaining environmental cleanliness
20	Presenting various objects in the form of works
21	Expressing desires in the form of feelings, scribbles, writing, etc.
	Cheerful/Happy Component
22	Can always be carefree and happy
23	Can always laugh, relax
24	Can sing and rejoice together
25	Can do fun activities such as, playing, singing, eating, etc.
26	Can sit in a circle, overflowing with feelings
27	Can exchange messages and experiences with their friends

Research Procedure

The research procedure begins with initial preparations, including the selection of early childhood education institutions that will be used as research locations, as well as training for teachers on the implementation of the BERAKSI model. Namely the implementation of the BERAKSI model is carried out for one semester of school, with regular supervision and guidance from the research team. During this process, data is collected through observations, interviews, and questionnaires. After the implementation is complete, the data obtained from the experimental and control groups are analyzed using the n-gain test to see the improvement occurring. A t-test was performed to test the difference in outcomes between the two groups,

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and a homogeneity test was used to ensure the equivalence of the initial characteristics of the research subjects (30). The evaluation of the results of the study was carried out to assess the extent to which the BERAKSI model succeeded in improving aspects of child development, as well as provide recommendations for further improvement and application in other early childhood education institutions.

3. RESULTS AND DISCUSSION

Description of BERAKSI Model Implementation

The implementation of the BERAKSI (Play, Create, Discuss, and Cheerful) model in early childhood education institutions (ECE) in Bulukumba Regency is carried out by involving all the main components that have been designed in this model. The application of the BERAKSI model is carried out during one semester of school, where each learning activity is structured based on the main principles of BERAKSI.

The implementation process begins with the introduction of the model to teachers through training and workshops, followed by direct implementation in the classroom. Play activities are the main focus, where children are invited to participate in various types of games that are not only entertaining, but also educational. Each play session is followed by creative activities, such as drawing, composing stories, or making crafts, designed to stimulate children's creativity.

The reaction from the teachers and children was very positive. Teachers reported that the BERAKSI model not only made the teaching and learning process more enjoyable, but also increased children's involvement in classroom activities. The children showed high enthusiasm, especially in the play and creation sessions. In addition, group discussions held after play activities help children to communicate and collaborate more actively with peers, while the cheerful atmosphere created in the classroom helps reduce fear and anxiety among children.

Data Analysis

Data collection was carried out through observation, and interviews, which were disseminated to teachers and parents. The data collected were analyzed to assess the effectiveness of the BERAKSI model in improving aspects of child development, Quantitative analysis using the n-gain test showed a significant improvement in children's development in the experimental group compared to the control group. The higher mean n-gain values in the experimental group indicated that children who followed the BERAKSI model experienced greater improvements in their cognitive and social-emotional skills compared to children who followed conventional learning methods. The t-test also showed significant results, with a p-value < 0.05, which corroborates that the difference between the two groups is not a mere coincidence. Meanwhile, the homogeneity test ensured that both groups had equivalent initial characteristics, so that the observed changes could be directly attributed to the application of the BERAKSI model.

Table 3 Descriptive Statistics Analysis

class		N	Mean	Std. Deviation	Std. Error Mean
Pree Test	Control Classes	52	79.65	4.858	0.674
	Experimental Classes	64	85.88	4.722	0.590
Post Test	Control Classes	52	91.67	5.783	0.802
	Experimental Classes	64	99.10	4.733	0.592

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From the data mentioned above, the experimental class has a higher average pre-test (85.88) compared to the control class (79.65). This suggests that the experimental group may already have had an initial advantage or different conditions compared to the control group before the intervention was applied. After the intervention, the mean post-test score improved in both classes, but the improvement in the experimental class (from 85.88 to 99.10) was greater compared to the control class (from 79.65 to 91.67). This shows that the intervention applied to the experimental class has a significant positive impact on learning outcomes. The slightly increased standard deviation in the control class showed that the results of the post-test in the control class were more varied than in the pre-test. In contrast, the experimental class had a standard deviation that remained stable, which suggests that the results were more consistent among students after the intervention. Based on this data, it can be concluded that the intervention given in the experimental class is more effective in improving student performance compared to the control class. Higher mean increases as well as stability of outcomes in experimental classes support the effectiveness of the interventions applied.

Table 4. Test of Homogeneity of Variance

Class		Levene Statistic	df1	df2	Mr.
Pree Test	Based on Mean	0.028	1	114	0.866
	Based on Median	0.002	1	114	0.961
	Based on Median and with adjusted df	0.002	1	113.462	0.961
	Based on trimmed mean	0.015	1	114	0.902
Post Test	Based on Mean	1.821	1	114	0.180
	Based on Median	1.106	1	114	0.295
	Based on Median and with adjusted df	1.106	1	103.485	0.295
	Based on trimmed mean	1.679	1	114	0.198

The results of the variance homogeneity test (Levene's Test) for pre-test data, with various statistical approaches (mean, median, trimmed mean) to ascertain whether the variance between groups is homogeneous or not. An F value of 0.028 with a significance level (Sig.) of 0.866 indicates that there is no significant difference in variance between groups based on the mean. Since the Sig. value is much greater than 0.05, this indicates that the variance between the groups is considered homogeneous. Meanwhile, for the Post test, the F score was 1.821 with a significance level (Sig.) of 0.180, indicating that there was no significant difference in variance between groups based on the average. Since the Sig. value is greater than 0.05, the variance between the groups is considered homogeneous. So all statistical approaches (mean, median, median with adjusted df, and trimmed mean) show that the variance between groups on pre test and post-test data does not differ significantly. The significance value (Sig.) for all approaches is greater than 0.05, which means that the assumption of variance homogeneity is metod.

Table 5 Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Mr.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

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Pree Test	Equal variances assumed	0.028	0.866	-6.966	114	0.000	-6.221	0.893	-7.990	-4.452
	Equal variances not assumed			-6.945	107.8	0.000	-6.221	0.896	-7.997	-4.446
Post Test	Equal variances assumed	1.821	0.180	-7.607	114	0.000	-7.427	0.976	-9.361	-5.493
	Equal variances not assumed			-7.452	98.09	0.000	-7.427	0.997	-9.405	-5.449

The data from the pretest results showed that the variance between the two groups (control group and experimental group) was considered homogeneous because the significance value (Sig.) of 0.866 was greater than 0.05. Thus, the assumption of similarity of variance is met, and the results of the t-test can be interpreted with the assumption of the same variance. A t-value of -6.966 with a significance level (Sig.) of 0.000 showed a very significant difference between the average pre-test scores of the two groups. Since the Sig. value is less than 0.05, we reject the null hypothesis stating that there is no mean difference between the two groups.

The data from the posttest results showed that this result showed that the variance between the two groups was considered homogeneous because the significance value (Sig.) of 0.180 was greater than 0.05. Thus, the assumption of similarity of variance is met, and the results of the t-test can be interpreted with the assumption of the same variance. A t-value of -7.607 with a significance level of 0.000 showed a very significant difference between the average post-test scores of the two groups. Because the Sig. value was less than 0.05, the null hypothesis stating that there was no mean difference between the two groups was rejected.

Test results *independent t-test* Both the pre-test and post-test showed that there was a significant difference between the control group and the experimental group. In the pre-test, the experimental group had a higher average score than the control group, and this difference was even greater in the post-test. This indicates that interventions applied to the experimental group (possibly in the form of a specific learning model) successfully improved learning outcomes compared to the control group.

Table 6 Descriptives N-Gain Analysis

Class				Statistic	Std. Error
N-Gain %	Control Classes	Mean		44.1754	1.48539
		95% Confidence Interval for Mean	Lower Bound	41.1934	
			Upper Bound	47.1575	
		5% Trimmed Mean		43.9600	
		Median		44.3292	
		Variance		114.732	
		Std. Deviation		10.71130	
		Minimum		26.18	
		Maximum		66.07	
		Range		39.89	
		Interquartile Range		19.29	
		Skewness		0.140	0.330
		Kurtosis		-0.867	0.650
	Experimental Classes	Mean		62.4927	1.79416
			Lower Bound	58.9074	

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95% Confidence Interval for Mean	Upper Bound	66.0781	
5% Trimmed Mean		61.5963	
Median		61.4739	
Variance		206.018	
Std. Deviation		14.35332	
Minimum		37.04	
Maximum		112.22	
Range		75.18	
Interquartile Range		18.61	
Skewness		0.768	0.299
Kurtosis		1.039	0.590

The average N-Gain score of 44.1754 shows that the control class experienced an increase in learning outcomes of 44.18% from pre-test to post-test. This means that there is a moderate improvement in learning outcomes, but this increase may not be very significant. A median N-Gain of 44.3292 indicates that 50% of the students in the control class have an N-Gain below this value, and another 50% have an N-Gain above it. The median close to the mean shows a relatively symmetrical distribution of improved learning outcomes. And a variance of 114,732 shows that there is a considerable difference in the improvement of learning outcomes among students in the control class. This means that there is significant variation in how much students experience an improvement in learning outcomes.

The average N-Gain score of 62.4927 shows that the experimental class experienced an increase in learning outcomes by 62.49% from pre-test to post-test. This is a significant improvement and shows that the intervention or learning model applied to the experimental classroom is very effective in improving learning outcomes. A median N-Gain of 61.4739 indicates that half of the students in the experimental class had an N-Gain below this value, and the other half above. As with the control class, the near-average median shows a symmetrical distribution. A variance of 206,018 showed that there was a greater difference in the improvement of learning outcomes among students in the experimental class compared to the control class. This variation may be due to some students experiencing very high improvements, while others experiencing more moderate increases.

The experimental class showed a significantly higher improvement in learning outcomes compared to the control class, which was shown by a higher average N-Gain (62.49% versus 44.18%). Variance and higher standard deviations in experimental classrooms indicate greater variation in student learning outcomes, with some students experiencing huge improvements. These data show that the intervention or learning model applied to the experimental class is more effective in improving learning outcomes compared to the approach used in the control class.

Discussion

The interpretation of the results shows that the BERAKSI model has succeeded in achieving its main goal, which is to improve aspects of child development in early childhood education. The success of the BERAKSI model can be attributed to its holistic and integrative approach, which incorporates essential elements in early childhood learning, such as play, creativity, social interaction, and a fun learning atmosphere. This model gives children space to express and develop themselves in a supportive environment, which in turn accelerates their development in various aspects. However, the challenges in implementing the BERAKSI model cannot be ignored either. Some teachers report difficulties in managing more dynamic and interactive classrooms, especially when children are too excited about play, making it difficult to return to more structured activities. In addition, the time required to implement each component of BERAKSI sometimes disrupts the existing lesson schedule, requiring considerable adjustments from the school.

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Comparisons with previous studies show that the BERAKSI model is in line with the results of other studies that emphasize the importance of active and interactive learning in early childhood education. Research conducted by (39–42), emphasizes that play-based learning has a significant positive impact on children's cognitive and social development. Meanwhile, a study by (43–46), highlights the importance of a fun learning atmosphere in increasing children's motivation to learn, which is also one of the main pillars in the BERAKSI model.

Compared to other learning models such as Montessori or Reggio Emilia, BERAKSI offers a more structured approach in integrating different aspects of child development (47). In contrast to Montessori which emphasizes more on individual independence, BERAKSI pays more attention to group dynamics and social interaction, which has proven to be effective in the context of early childhood education in Indonesia (48,49). The implications of this study include recommendations for the wider application of the BERAKSI model in early childhood education in Indonesia, especially in areas that have challenges in creating a learning environment that supports the holistic development of children. This research also opens up opportunities for further development of the BERAKSI model, for example by adapting its components according to the local needs and characteristics of each ECE.

4. CONCLUSION

This study has successfully identified and confirmed that the BERAKSI (Play, Create, Discuss, and Cheerful) learning model has a significant impact on improving aspects of child development in early childhood education institutions (ECE) in Bulukumba Regency. Key findings suggest that the application of this model not only improves children's cognitive abilities but also strengthens their social-emotional and motor skills. Children who engage in the BERAKSI model show increased confidence, creativity, critical thinking skills, and cooperation with peers. The implications of these findings emphasize the importance of implementing a holistic and interactive learning approach in early childhood education, which is able to provide a holistic learning experience and support the overall development of children.

Based on the results of this study, it is recommended that the BERAKSI model be adopted more widely in early childhood education institutions, not only in Bulukumba Regency but also in other regions in Indonesia. Further development of this model can be done by adapting the components of BERAKSI to the local needs and characteristics of children in different regions. In addition, training and mentoring for ECE teachers is highly recommended to ensure that the implementation of the BERAKSI model runs effectively and achieves the expected results. For future research, it is recommended to conduct longitudinal studies to assess the long-term impact of the BERAKSI model on child development, as well as further exploration of the application of this model in different cultural and social contexts.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

The author hereby declares that generative AI technologies such as Large Language Models, etc. have been used during script writing or editing. This explanation will include the name, version, model, and source of generative AI technology as well as all requests for input provided for generative AI technology.

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