The Implementation of the BCCT Block Center Learning Model to Enhance Early Childhood Cognitive Development: A Case Study at TKIT 1 Qurrota A'yun Ponorogo

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Abstract: This study aims to describe the preparation, implementation, and effectiveness of the Beyond Center and Circle Time (BCCT) block centre learning model in enhancing the cognitive development of early childhood students at TKIT 1 Qurrota A'yun, Ponorogo. Using a qualitative case study approach, data were collected through participant observation, interviews, and document analysis. The results indicate that teacher preparation, including lesson planning and learning environment organisation, aligns with BCCT principles. Applying the block centre model effectively fostered cognitive abilities such as problem-solving, early mathematical logic, and spatial understanding. However, limitations in space and some students' uneven progress suggest room for improvement in infrastructure and teaching methods. This study highlights the importance of teacher training and infrastructure development to optimise the BCCT model further. Future research should explore how enhancing facilities can improve learning outcomes in diverse educational settings.

Abstrak: Penelitian ini bertujuan untuk mendeskripsikan persiapan, pelaksanaan, dan efektivitas model pembelajaran sentra balok berbasis Beyond Center and Circle Time (BCCT) dalam meningkatkan perkembangan kognitif anak usia dini di TKIT 1 Qurrota A'yun, Ponorogo. Dengan menggunakan pendekatan studi kasus kualitatif, data dikumpulkan melalui observasi partisipan, wawancara, dan analisis dokumen. Hasil penelitian menunjukkan bahwa persiapan guru, termasuk perencanaan pembelajaran dan pengorganisasian lingkungan belajar, sudah sesuai dengan prinsip BCCT. Penerapan model sentra balok terbukti efektif dalam mengembangkan kemampuan kognitif seperti pemecahan masalah, logika matematika awal, dan pemahaman spasial. Namun, keterbatasan ruang dan perkembangan siswa yang tidak merata menunjukkan adanya ruang untuk perbaikan dalam infrastruktur dan metode pengajaran. Penelitian ini menekankan pentingnya pelatihan guru dan pengembangan infrastruktur untuk lebih mengoptimalkan model BCCT. Penelitian selanjutnya harus mengeksplorasi bagaimana peningkatan fasilitas dapat menghasilkan hasil pembelajaran yang lebih baik dalam berbagai lingkungan pendidikan.

Introduction

Early childhood education (PAUD) plays a crucial role in holistically developing children's potential, including their cognitive aspects.[1] Children experience rapid brain development at this age,[2] so the right learning strategies are essential to support their intellectual growth.[3] The center-based learning model, such as Beyond Centers and Circle

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[1] Nicole M Ardoin dan Alison W Bowers, "Early childhood environmental education: A systematic review of the research literature," *Educational Research Review* 31 (2020): 100353, doi:https://doi.org/10.1016/j.edurev.2020.100353.

[2] Elena Macrides, Ourania Miliou, dan Charoula Angeli, "Programming in early childhood education: A systematic review," *International Journal of Child-Computer Interaction* 32 (2022): 100396, doi:https://doi.org/10.1016/j.ijcci.2021.100396.

[3] Ana Lúcia Aguiar dan Cecília Aguiar, "Classroom composition and quality in early childhood education:

Time (BCCT), is a recognised approach that stimulates children's cognitive development. This model emphasises active learning through play and social interaction, which aligns with early childhood developmental needs. Therefore, exploring and implementing this learning model in various PAUD institutions across Indonesia is essential.

Previous research has shown that centre-based learning models, including BCCT, are effective in developing the skills and potential of young children. According to Hasanah et al. (2024), the centre-based model can enhance children's skills as they are encouraged to participate actively while the teacher is a facilitator.[4] This is supported by the study of Fitri et al. (2022), which states that the BCCT model does not require extensive equipment but can significantly optimise children's intelligence.[5] Additionally, Andriyanti (2023) revealed that BCCT effectively encourages children to learn while playing, which aligns with their imagination and creativity.[6] The use of BCCT in early childhood education is becoming increasingly relevant as a growing body of empirical evidence supports its benefits.

In addition to cognitive skills, the BCCT learning model is also known to contribute to children's independence and creativity. Dau and Santosa (2023) stated that implementing BCCT for children aged 5-6 at TK Kristen Imanuel Terpadu enhanced the children's independence and creativity.[7] Similarly, Romini (2021) found that implementing BCCT at TK Kristen Pniel increased children's creativity and motivated teachers to provide games that stimulate multiple intelligences.[8] BCCT, with its interactive and enjoyable approach, facilitates cognitive development and children's social-emotional aspects.

Although the BCCT learning model has been successfully implemented in various institutions, its application has challenges and limitations. Wahyuningsih (2020) emphasised that although BCCT helps children grow according to their potential and interests, implementing this model requires intensive teacher preparation.[9] This is reinforced by the findings of Ardiana and Astuti (2021), who noted that the main obstacle to implementing BCCT is inadequate preparation. This indicates the need for new policies to improve lesson planning and teacher evaluation.[10] Therefore, further research is needed to address these challenges and optimise the benefits of BCCT implementation.

A systematic review," *Children and Youth Services Review* 115 (2020): 105086, doi:https://doi.org/10.1016/j.childyouth.2020.105086.

[4] Lathipah Hasanah et al., "Model Kurikulum dengan Pendekatan Sentra pada Lembaga Pendidikan Anak Usia Dini," *AGAPEDIA* 8, no. 1 (2024): 83–96, doi:10.17509/jpa.v8i1.71765.

[5] Aida Nur Fitri, Christine Steffani Hutasoit, dan Salsabila Afifah, "Mengenal Model PAUD Beyond Centre and Circle Time (BCCT) Untuk Pembelajaran Anak Usia Dini," *Jurnal AUDHI* 4, no. 2 (2022): 72–78, doi:10.36722/jaudhi.v4i2.944.

[6] Novi Andriyati, "Implementasi Model Pembelajaran Beyond Centers and Circle Times (BCCT) Pendidikan Anak Usia Dini," *JIIP - Jurnal Ilmiah Ilmu Pendidikan* 6, no. 6 (2023): 3865–68, doi:10.54371/jiip.v6i6.2105.

[7] Mersi Prastika Dau, "Implementasi Model Pembelajaran BCCT pada Pendidikan Kristen Anak Dini Usia 5-6 Tahun Meningkatkan Kemandirian dan Kreativitas," *EDULEAD: Journal of Christian Education and Leadership* 4, no. 1 (2023): 51–65, doi:10.47530/edulead.v4i1.146.

[8] Romini Romini, "Implementasi Model Pembelajaran Beyond Center And Circle Time (BCCT) Sebagai Upaya Meningkatkan Kualitas Pendidikan," *EDULEAD: Journal of Christian Education and Leadership* 2, no. 2 (2021): 219–34, doi:10.47530/edulead.v2i2.66.

[9] Dian Wahyuningsih, "Model Pembelajaran BCCT Bagi Anak Usia Dini Sesuai Dengan Tahap Perkembangan," *DUNIA ANAK: Jurnal Pendidikan Anak Usia Dini* 3, no. 1 (2020): 58–69, doi:10.31932/jpaud.v3i1.930.

[10] Dionysia Nova Ardiana dan Ajeng Ayu Widiastuti, "Penerapan Pendekatan BCCT di KB-TK Realfunrainbow Preschool Salatiga," *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini* 5, no. 1 (2021): 795–804, doi:10.31004/obsesi.v5i1.707.

This research aims to fill the gap in the literature regarding the application of the BCCT learning model, particularly in the context of using the block centre at TKIT 1 Qurrota A'yun Ponorogo. The study will focus on three main aspects: teacher preparation and planning, implementing the block centre model, and enhancing children's cognitive abilities through this model. By analysing these three aspects, it is hoped that this study's results will significantly contribute to the development of early childhood education, particularly in improving children's cognitive abilities through structured and interactive learning.

Method

2.1. Research Design and Methodology

This study employs a qualitative approach using a case study method to gain an in-depth understanding of implementing the Beyond Center and Circle Time (BCCT) model in the TKIT 1 Qurrota A'yun Ponorogo block centre. The research is conducted through participatory observation, where the researcher acts as a critical instrument, is directly involved in the learning process, and interacts with the subjects over an extended period. Data are collected through various techniques, including interviews, observations, and documentation. Interviews are conducted with kindergarten teachers (class B) as the primary informants, while secondary data are obtained from supporting documents such as books, academic papers, and other relevant materials.

2.2. Procedures

Data collection uses three main techniques: structured interviews with key informants, direct observation of the learning process, and documentation related to implementing BCCT in the block centre. In-depth observations examine how the BCCT model is applied in children's daily activities, including how teachers design and manage the centre's activities. Additionally, documentation such as field notes and supporting documents enriches the data gathered from interviews and observations.

2.3. Data Collection and Analysis

The data analysis technique used in this study follows the interactive model proposed by Miles and Huberman, which consists of three main stages: data reduction, data display, and conclusion drawing or verification. The first stage, data reduction, involves simplifying, selecting, and focusing on relevant data from the observations, interviews, and documentation collected during the research. This reduction eliminates irrelevant data that does not support the research focus, ensuring that only necessary information aligned with the research objectives is processed further. The reduced data are then systematically arranged and presented as descriptive narratives, tables, or diagrams to help readers understand the patterns, trends, or phenomena emerging from the research findings. The data presentation describes the research findings but also assists in identifying essential relationships between the variables studied, particularly in applying the BCCT model in the block centre. In the final stage, conclusion drawing or verification, the researcher critically reflects on the analysed data, considering all the information presented, to make in-depth interpretations and answer the research questions comprehensively. The conclusions drawn are not only based on the existing data. Still, they are also tested for validity through data triangulation, which involves comparing results from various data sources to ensure the findings are valid and reliable.

2.4. Validity and Reliability

To ensure the validity and reliability of the data, this study applies triangulation techniques, both source and technique triangulation. Source triangulation is carried out

by comparing data obtained from interviews, observations, and documentation. In contrast, technique triangulation is performed using multiple data collection methods to verify the findings' validity. With this approach, the research aims to provide an accurate and comprehensive depiction of the efforts to enhance children's cognitive intelligence through the BCCT learning model in the block centre.

Result and Discussion

This study aims to describe and analyse the preparation, implementation, and effectiveness of the BCCT-based block centre learning model in improving the cognitive intelligence of early childhood students at TKIT 1 Qurrota A'yun Ponorogo. The research results are presented as follows:

3.1. Teacher's Steps in Preparing and Planning the Implementation of the BCCT Block Center Learning Model

Preparation and planning are essential steps that educators must take before entering the actual learning activities.[11] This planning includes organising the classroom and arranging students according to their needs, commonly called the "main environment foundation.[12] Key steps the teacher must take in setting up this environment include:[13]

a. The arrangement of facilities and classroom infrastructure should match the activities to be carried out.
b. Grouping tables and chairs according to needs gives each child enough space to move freely. The seating arrangement can vary, and children only sometimes have to sit in chairs; they may sit on mats or carpets.
c. Classroom walls can display learning materials and children's work but should not be overly cluttered to avoid distractions.
d. Play equipment should be arranged appropriately according to its function.
e. Safety equipment should be placed in the classroom and ready for use when students need it.

Based on the observations made by the researcher, TKIT 1 Qurrota A'yun has already implemented the main environment foundation according to the theory mentioned above. Before the learning activities start, the teacher arranges the classroom, sets up the facilities, organises the games, and prepares the materials and tools for the learning process. In the block centre classroom, the teacher also sets up a space to display rewards given to children who complete activities, such as star stickers. The children are asked to come forward one by one as their names are called and attach the completed work they have done to the designated area. Additionally, the school prepares learning programs, including the Semester Program (PROMES), Weekly Lesson Plan (RPPM), and Daily Lesson Plan (RPPH).

According to the researcher's observations at TKIT 1 Qurrota A'yun Ponorogo, the teacher's preparation and planning in learning activities align with the contents of Permendikbud (Ministry of Education and Culture Regulation) Numbers 137 and 146. The planning includes the Semester Program, which outlines the list of themes for the

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[11] Maulina Wimukti Rahayu dan Darsinah Darsinah, "Analisis Perencanaan Pembelajaran dalam Pengembangan Kreativitas untuk Mewujudkan Profil Pelajar Pancasila," *Murhum: Jurnal Pendidikan Anak Usia Dini* 5, no. 1 (2024): 51–60, doi:10.37985/murhum.v5i1.444.

[12] Efrida Ita et al., "Pelatihan Penyusunan Perencanaan Pembelajaran Berbasis Kurikulum Merdeka Bagi Guru PAUD," *Jurnal Pengabdian Kolaborasi dan Inovasi IPTEKS* 2, no. 3 (2024): 754–59, doi:10.59407/jpki2.v2i3.719.

[13] Amara Delvia, Iin Maulina, dan Yuniarti, "Management of Preparation Centers in Class B Mujahideen Kindergarten 2 Pontianak," *Indonesian Journal of Early Childhood: Jurnal Dunia Anak Usia Dini* 6, no. 2 SE-Articles (2024): 245–51, doi:10.35473/ijec.v6i2.2722.

semester and allocates time for each theme. The teacher also plans the Weekly Lesson Plan (RPPM), which guides learning activities for the week. Lastly, the Daily Lesson Plan (RPPH) is planned, which includes the theme/sub-theme, age group, allocated time, learning activities, developmental indicators, child development assessments, and the media and learning resources.

Therefore, this research's findings indicate that the teacher's preparation and implementation of learning are by the standards set in Permendikbud Numbers 137 and 146. The teacher systematically prepares the learning environment, plans learning materials, and provides rewards in symbolic forms, such as star images, to motivate the children. The learning plans are also structured through the Semester Program, Weekly Lesson Plan, and Daily Lesson Plan, which contain themes, development indicators, and precise assessments.

These findings align with research conducted by Sufiati and Afifah (2019), which highlighted the importance of structured learning planning in early childhood education. Their study explained that the Semester Program, RPPM, and RPPH support children's holistic development.[14] This research confirms that good planning focuses on cognitive development and children's social-emotional aspects, as reflected in rewards motivating children to participate actively in learning activities.

Another study by Lestari et al. (2020) also emphasised the importance of preparing a learning environment that supports early childhood education. The study found that an attractive and child-centred classroom environment could increase children's learning motivation and engagement in activities.[15] This supports the findings at TKIT 1 Qurrota A'yun, where the teacher arranges the classroom and its facilities and provides space for displaying children's work. The rewards given to children through star stickers show how external motivation can positively influence children's behaviour during learning when applied correctly.

Thus, based on these findings and discussions, it can be concluded that the teacher's planning and use of rewards in the learning process at TKIT 1 Qurrota A'yun align with educational standards and contribute to optimal child development. This is crucial in ensuring that learning is content-focused and child-centred.

3.2. The Implementation of BCCT Block Center Learning in Enhancing Early Childhood Cognitive Intelligence at TKIT 1 Qurrota A'yun Ponorogo

The Beyond Centers and Circle Time (BCCT) model is an approach to early childhood education that combines theory and practical experience.[16] The BCCT learning process is centred around circle time and play centres. The circle here refers to the teacher sitting with the children in a circle formation, allowing direct interaction and facilitating pre- and post-play discussions.[17] Four scaffolding steps are used to support children's

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[14] Vivi Sufiati dan Sofia Nur Afifah, "Peran perencanaan pembelajaran untuk performance mengajar guru pendidikan anak usia dini," *Jurnal Pendidikan Anak* 8, no. 1 (2019): 48–53, doi:10.21831/jpa.v8i1.26609.

[15] Ririn Hunafa Lestari et al., "Perancangan Perencanaan Pembelajaran Anak Usia Dini Melalui Sistem Informasi Berbasis Website," *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini* 5, no. 2 (2020): 1396–1408, doi:10.31004/obsesi.v5i2.770.

[16] Qisthina Hsb, Sri Wahyuni, dan Fakih Hakim Hasibuan, "Implementasi Model Pembelajaran Sentra Cooking Class dalam Mengembangkan Sikap Kemandirian Anak Usia Dini di RA Zu Tsaqif," *Khirani: Jurnal Pendidikan Anak Usia Dini* 2, no. 3 (2024): 194–207, doi:10.47861/khirani.v2i3.1293.

[17] Alfredo Bautista et al., "Purposeful play during learning centre time: from curriculum to practice," *Journal of Curriculum Studies* 51, no. 5 (2019): 715–36, doi:10.1080/00220272.2019.1611928.

development: the play environment scaffold, the pre-play scaffold, the during-play scaffold, and the post-play scaffold.[18]

Based on the observations conducted at TKIT 1 Qurrota A'yun Ponorogo, implementing the BCCT model at the block centre aligns with the theoretical framework. The four scaffolding steps are applied in the learning process as follows:

a. **Play Environment Scaffold**: The teacher prepares the tools and materials before learning begins.
b. **Pre-play Scaffold**: During this phase, the children are invited to sit in a circle, sing, and pray together. The activities include introducing the tools and materials, explaining the day's theme, providing game rules, and allowing the children to play.
c. **During-play Scaffold**: The teacher is involved by accompanying the children, assisting those who need it, recording children's abilities, and praising those who succeed in activities.
d. **Post-play Scaffold**: The teacher instructs the children to tidy up, sit in a circle, and discuss what they did during playtime and how they feel about it.

The block centre aims to develop children's abilities to understand, imagine, remember, and think in visual-spatial forms. This centre allows children to play with various block shapes, such as cubes, dice, geometric forms, etc., in different sizes, colours, and textures.[19] Through playing with blocks, children learn many things, such as logic, early mathematics, problem-solving, and spatial understanding. When children use blocks, they naturally experience weight, length, and other concepts without being forced to recognise shapes and different ideas.[20]

According to the observations at TKIT 1 Qurrota A'yun, the facilities for playing with blocks are well provided, including cubes, dice, and geometric blocks. These facilities encourage children to enthusiastically engage in play without fighting over the toys. They are free to build structures based on their imagination and skills. The easy-to-use block centre tools interest children in learning while playing, indirectly helping them develop cognitive skills such as problem-solving and creativity. Teachers introduce new themes and show children different building structures through electronic media, pictures, or books to ensure diversity in children's block creations each week. The teacher also encourages children to build with one specific block type and uses direct demonstration to guide them.

Therefore, implementing the BCCT model in the block centre at TKIT 1 Qurrota A'yun Ponorogo effectively applies all four scaffolding steps. Children are given adequate opportunities to develop their cognitive abilities, particularly visual-spatial intelligence and problem-solving skills, through active interaction with various blocks. Moreover, the availability of proper facilities at the block centre boosts children's interest and motivation to learn while playing, ensuring a smooth and productive learning process.

Using the BCCT model, especially in the block centre, aligns with previous research by Mala & Sari (2022), which concluded that using blocks in learning could enhance children's cognitive abilities, particularly in visual-spatial intelligence and basic logical

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[18] Robyn M Holmes, Christine Bant, dan Kristen Kohm, "Making connections between learning centres and children's play lives during the COVID-19 pandemic," *Early Child Development and Care* 192, no. 16 (10 Desember 2022): 2600–2614, doi:10.1080/03004430.2022.2032016.

[19] Olivia N Saracho, "Theories of Child Development and Their Impact on Early Childhood Education and Care," *Early Childhood Education Journal* 51, no. 1 (2023): 15–30, doi:10.1007/s10643-021-01271-5.

[20] Young Sun Joo et al., "What Works in Early Childhood Education Programs?: A Meta–Analysis of Preschool Enhancement Programs," *Early Education and Development* 31, no. 1 (2020): 1–26, doi:10.1080/10409289.2019.1624146.

mathematics. These findings affirm that learning through play in the block centre facilitates the development of early childhood abstract thinking and problem-solving skills.[21] In the context of TKIT 1 Qurrota A'yun, using various block shapes and sizes helps children recognise basic concepts like weight, length, shape, and texture, which are crucial for cognitive development.

Sumiyati et al. (2021) also found that implementing centre-based learning impacts children's cognitive development and social and emotional skills, particularly in the block centre.[22] As observed at TKIT 1 Qurrota A'yun Ponorogo, children learn to cooperate, share, and communicate while playing with blocks. Teachers actively provide scaffolding during play, offering assistance when needed and giving praise to motivate children. This involvement highlights that teacher participation in the block centre supports cognitive development and fosters children's self-confidence and intrinsic motivation.

3.3. Enhancing Early Childhood Cognitive Intelligence through BCCT Block Center Learning at TKIT Qurrota A'yun Ponorogo

Cognitive intelligence is one of the critical developmental aspects that need to be cultivated in children.[23] The term "cognitive" originates from "cognition" or "knowing," referring to mental activities related to acquiring, organising, and using knowledge. Broadly, cognitive development refers to mental processes that occur in the brain and are associated with will (conation) and emotion (affection).[24] Cognitive development is the process through which individuals enhance their ability to use knowledge. It encompasses several skills, including understanding abstract symbols, improving memory, and developing reasoning and argumentation abilities.[25]

One centre suitable for enhancing children's cognitive intelligence is the block centre. The aim of developing early childhood cognition through block play includes four domains: 1) problem-solving/reasoning, 2) concept formation, 3) imitation/memory, and 4) association/classification. Teachers can achieve these domains through various activities.[26]

In the block centre, children play with different shapes of blocks, such as cubes, dice, and geometric shapes, in various sizes, colours, and textures. Children learn many things through block play, including basic logical mathematics, thinking skills, and problem-solving. The advantage of using the BCCT (centre) method is that it creates a learning environment that encourages children to be active, creative, and independent by

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[21] Nilna Farhata Wika Mala dan Ratih Permata Sari, "Media Balok Untuk Kemampuan Kognitif Anak Usia Dini Di Kelompok a Ra Sunan Giri Sumberjaya Gondanglegi-Malang," *JURALIANSI: Jurnal Lingkup Anak Usia Dini* 3, no. 2 (2022): 30–37, doi:10.35897/juraliansipiaud.v3i2.878.

[22] Sumiyati Sumiyati, Siswanto Masruri, dan Maemonah Maemonah, "Implementasi Model Pembelajaran Sentra pada Lembaga Taman Kanak-Kanak di Kabupaten Pati," *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini* 5, no. 2 (2021): 1261–68, doi:10.31004/obsesi.v5i2.814.

[23] Kyoung Min Kim, "Associations between breastfeeding and cognitive function in children from early childhood to school age : a prospective birth cohort study," *International Breastfeeding Journal* 4 (2020): 1–9.

[24] Asma Ahmed et al., "Early childhood growth trajectory and later cognitive ability: evidence from a large prospective birth cohort of healthy term-born children," *International Journal of Epidemiology* 49, no. 6 (2020): 1998–2009, doi:10.1093/ije/dyaa105.

[25] Vasiliki Pitsia Gráinne Kent dan Gary Colton, "Cognitive development during early childhood: insights from families living in areas of socio-economic disadvantage," *Early Child Development and Care* 190, no. 12 (2020): 1863–77, doi:10.1080/03004430.2018.1543665.

[26] Salsabila Ahlina, "Model Pembelajaran Sentra Bermain Peran dalam Mengembangkan Kemampuan Sosial Emosional Anak Usia Dini di Taman Kanak-Kanak Islam Al-Mahir Kota Jambi," *Journal of Applied Transintegration Paradigm* 4, no. 1 (2024): 12–25.

exploring their experiences rather than simply following teacher instructions, imitating, or memorising.[27]

However, based on observations at TKIT 1 Qurrota A'yun Ponorogo, where the centre (BCCT) model is applied, some children's cognitive development has not yet reached its maximum potential. Some children still struggle to respond to the teacher's instructions, such as grouping blocks by shape or identifying the colours of block sets. Additionally, some children find it difficult to imitate patterns or drawings. A further challenge is the limited play area, which ideally should be about 3 meters for optimal creativity, but where space is restricted. Nonetheless, other facilities are adequate.

Despite these challenges, teachers view these issues as manageable and can maintain sound conditions in the learning environment. Children's cognitive development through the block centre has shown significant progress. The children enjoy the learning process, making it easier to grasp the lessons. To sustain their learning enthusiasm, teachers use praise and symbols like stars to reward children for completing tasks. Moreover, children are encouraged to engage in activities at their own pace and according to their preferences without being forced by the teacher. This approach indirectly hones the children's cognitive intelligence and independence.

Therefore, compared to previous studies, the results of this research are consistent with the findings of Hasanah et al. (2024), which stated that the centre-based learning model could develop early childhood skills interactively and enjoyably.[28] Fitri et al. (2022) also found that BCCT effectively optimises children's intelligence without requiring many tools, which aligns with the conditions at TKIT 1 Qurrota A'yun.[29] However, some challenges encountered in this study, such as limited play space, indicate obstacles that must be addressed to achieve more optimal results. These findings also support the view of Ardiana and Astuti (2021), who emphasised the importance of sound policies and learning designs to overcome spatial and facility constraints in implementing the BCCT model.[30]

The findings explain that the BCCT Block Center model offers a holistic approach that allows children to learn through the exploration and manipulation of objects, such as blocks. Through hands-on experiences, children can grasp abstract concepts such as shapes, sizes, and colours, enhancing their critical thinking skills.[31] Additionally, active teacher involvement in guiding play activities helps children develop their cognition through structured interactions. Nevertheless, the role of the teacher as a facilitator still requires specific training to implement the learning steps effectively.

It is important to note that the success of improving cognitive intelligence through the BCCT model is not solely dependent on the tools used but also on a conducive learning environment that supports children's creativity. Children can explore their imagination and develop their thinking skills more effectively by providing more space and various play tools. The space limitations found in this study should be considered for further

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[27] Ibnu Imam et al., "Penerapan Model Pembelajaran BCCT Pada Aspek Perkembangan Anak Usia Dini Di Kelompok Bermain Assa'idiyah Bandung Barat," *Raudhatul Athfal: Jurnal Pendidikan Islam Anak Usia Dini* 8, no. 1 (2024): 1–17, doi:10.19109/ra.v8i1.21784.

[28] Hasanah et al., "Model Kurikulum dengan Pendekatan Sentra pada Lembaga Pendidikan Anak Usia Dini."

[29] Fitri, Hutasoit, dan Afifah, "Mengenal Model PAUD Beyond Centre and Circle Time (BCCT) Untuk Pembelajaran Anak Usia Dini."

[30] Ardiana dan Widiastuti, "Penerapan Pendekatan BCCT di KB-TK Realfunrainbow Preschool Salatiga."

[31] Yandi Hafizallah, "the Critics of Thomas Lickona'S Character Education: Islamic Psychology Perspective," *Psychosophia: Journal of Psychology, Religion, and Humanity* 2, no. 2 (2020): 142–56, doi:10.32923/psc.v2i2.1414.

development, as the size of the play area also plays a crucial role in providing optimal learning experiences for children.

The implications of this research highlight the importance of developing infrastructure and training programs for teachers to implement the BCCT learning model more effectively. These findings also contribute to the literature on early childhood education, particularly in Indonesia, where implementing the BCCT model has proven successful in enhancing children's cognitive aspects. The limitations of this research, such as limited space and the number of participants who have yet to achieve optimal results, indicate that there is still room for further improvement in this learning model. Future research could examine how improvements in facilities and infrastructure could better support the success of BCCT learning in various early childhood education contexts.

Conclusion

This study aimed to describe the preparation, implementation, and effectiveness of the BCCT-based Block Center learning model in improving early childhood cognitive intelligence at TKIT 1 Qurrota A'yun Ponorogo. The research results indicate that the teachers' preparation and planning were based on the BCCT theory, including the organisation of the play environment and the planning of learning programs. The BCCT Block Center learning model implemented was also proven effective in supporting the development of children's cognitive intelligence, particularly in problem-solving, mathematical logic, and visual-spatial understanding. The implications of this research emphasise the importance of improving infrastructure and teacher training programs to optimise the application of BCCT. This study also contributes to the literature on early childhood education in Indonesia, showing that the BCCT model can significantly support children's cognitive development. However, limitations in play space and some children not showing optimal development indicate the need for facility improvements and teaching method adjustments. Further research is needed to explore ways to enhance the effectiveness of the BCCT model, including improving facilities and adapting to more varied learning environments. This is expected to improve early childhood learning outcomes more comprehensively.

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Aguiar, Ana Lúcia, dan Cecília Aguiar. "Classroom composition and quality in early childhood education: A systematic review." *Children and Youth Services Review* 115 (2020): 105086. doi:https://doi.org/10.1016/j.childyouth.2020.105086.

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