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The Whole Brain Teaching Model: How Does This Model Contribute to Social Skills in Early Childhood?

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ABSTRACT

Objective: This study aims to evaluate the impact of the Whole Brain Teaching Model on enhancing students' social skills. **Method**: A quantitative approach with experimental research methods was used, employing a one-group pretest-posttest design. The study population consisted of students from Darussalam Candi Kindergarten, Thoriqussalam Kindergarten, and Masyitoh Kindergarten in Sidoarjo Regency. Data analysis was conducted using a paired sample t-test. **Result**: The findings indicate significant improvements in the average pre-test and post-test scores across various dimensions: peer relationship skills increased by 1.62, self-control (self-management skills) by 1.52, academic skills by 1.58, compliance skills by 1.82, and assertion skills by 1.53. Consequently, the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted. Therefore, the Whole Brain Teaching model positively and comprehensively enhances various aspects of social skills in early childhood. **Novelty**: This study showcases a unique application of the Whole Brain Teaching (WBT) Model to enhance social skills in early childhood. By adopting a holistic approach that engages both the left and right brain, the study fosters cooperation, empathy, and communication, thereby offering a fresh perspective on early childhood education.

INTRODUCTION

Social skills are central to children's development, affecting their academic success, emotional well-being, and social integration. Zamata et al. (2023) explained that social ability helps students develop emotional and cognitive skills such as empathy, self-control, and problem-solving. Studies show that students with good social skills tend to be more successful in school, able to cooperate with peers, manage stress, and participate in learning activities. Good social skills are also associated with higher levels of psychological well-being, better self-esteem, and lower risk of mental disorders such as depression and anxiety (Schwager et al., 2020). In addition, social skills help students integrate into society, form healthy relationships, and actively participate in their communities, which is essential for building strong social networks and social support. Attachment Theory by John Bowlby and Mary Ainsworth explains that attachment parenting will impact children's social abilities in the future. So that a child who has a secure attachment can develop good social skills. In addition, previous research conducted by Vadivel et al. (2023) found that good social skills in children can improve academic achievement and reduce problems related to deviant behavior.

However, there are still problems to be faced in social skills, including specs that relate to an individual's ability to interact and communicate effectively in society. In addition, a major hindering factor is the need for more training and support for teachers in developing students' social skills. Children from low-income families often experience gaps in access to adequate educational facilities, which directly impacts the development of their social skills (Kalil & Ryan, 2020). The lack of adequate facilities

and infrastructure, such as proper classrooms, adequate learning materials, and a supportive learning environment, deprives children of low-income families of equal opportunities to develop critical social skills.

Meanwhile, in Indonesia, there is a significant gap in the provision of training for kindergarten teachers, which may impact teachers' need for more understanding and skills in teaching social skills to children (Morgan et al., 2022). In addition, differences in training participation between regions have also come into focus, where some regions may have better access to training than others (Emmenegger et al., 2019). The importance of providing equitable and comprehensive training for kindergarten teachers is not only limited to developing children's social skills but also in terms of using technology in learning, improving multiliteracy, and developing creativity and innovation skills in education. This is in line with efforts to create an adequate learning environment and prepare children holistically to face future challenges.

When students' social skills problems are not addressed, the impact can manifest in various aspects, ranging from interference in learning to limitations in adapting to the social environment. Students who experience these problems tend to have difficulty building healthy social relationships and often have difficulty cooperating with classmates and following teacher instructions well (Yafie et al., 2021). This can hinder their academic development and cause them to fall behind in their learning. In addition, limitations in their ability to adapt to social environments can also impact their future independence (Frone et al., 2020). Students who are not skilled in managing emotions and coping with conflict need help adjusting to new situations and facing challenges in daily life. Their ability to interact and communicate effectively is also limited, which may hinder their ability to build healthy interpersonal relationships and succeed in their future social and professional lives. Therefore, giving students enough attention and support is essential in developing their social skills to face these challenges better.

Social skills affect not only their interactions in the school environment but also their interactions with the students. It also impacts their ability to build healthy interpersonal relationships in the future, both in professional and social contexts (Bessa et al., 2019). In addition, solid social skills also contribute to students' learning effectiveness, helping them to adapt to a positive and productive learning environment (El-Sabagh, 2021). The impact is limited to academic aspects and students' emotional well-being. Students with good social skills tend to manage stress, conflict, and emotional distress better, thus maintaining their mental health.

Whole Brain Teaching (WBT) is a solution in education that encompasses various approaches to improve learning effectiveness. Whole Brain Teaching integrates various learning strategies to utilize the full potential of students' brains (Emyus et al., 2020). Through WBT, teachers can adopt active and interactive learning approaches, utilize technology and media, and develop students' critical and creative thinking skills (Afolabi & Segun, 2021). This approach emphasizes the importance of students' emotional and social engagement in learning and advocates responsive formative assessment. By creating multisensory learning environments and integrating life skills, WBT provides a comprehensive framework for teachers to create engaging, effective, and sustainable learning experiences for students.

Whole Brain Teaching can address issues related to students' social skills through active engagement of students through a technique such as Call and Response, which strengthens students' participation and attention in learning. In addition, Whole Brain Teaching emphasizes the use of the whole brain in learning, stimulating visual,

auditory, and kinesthetic areas, which helps students develop social skills through various activities that stimulate different areas of the brain (Reddy et al., 2021). Whole Brain Teaching also encourages students to work together in groups, build social skills such as cooperation, communication, and leadership, and teach effective classroom management strategies and creative games and activities to hone students' social skills. Research conducted by Sontillano (2018) explained that teaching using Whole Brain Teaching has a positive impact on students' academic performance in Algebra. Through teaching techniques involving the whole brain, students more actively participate in the teaching and learning process, improving their communication and social interaction skills.

With the Whole Brain Teaching approach, teachers can utilize methods that engage all parts of the student's brain, such as gestures, interactive dialog, and deep understanding of the subject matter (El-Henawy, 2018). In addition, Whole Brain Teaching can increase student engagement, strengthen connections between new information and existing knowledge, and accelerate the process of understanding and mastering concepts (Bawaneh, 2019). Another advantage is its ability to manage the class effectively, creating a dynamic and fun learning environment. Whole-brain teaching is also suitable because it can be adapted to different types of learning and facilitates the development of students' overall social, critical, and creative skills.

Previous Research

Study Robescu et al. (2023) have shown that students with mild intellectual disabilities generally exhibit lower levels of social competence compared to typically developing students, highlighting the importance of early intervention and support. In addition, studies on the social behavior of male and female students show that both generally exhibit positive social behavior, although male students tend to be more irritable. Research conducted by Darginidou (2019) on students aged 12-13 showed that they have a relatively high level of social ability, which comes from successful social adaptation and good mental health.

Research Novelty

The Whole Brain Teaching Model is a novel approach that can contribute significantly to developing social skills in early childhood education. The particular focus on early childhood is a critical period in social and cognitive development, which will provide new insights into the impact of early intervention on social skills in the long term. Research by Ismail & Subagyo (2023) used a project-based learning model and hyperflex learning (flexible hybrid), while this study chose Whole Brain Teaching as an updated model in the teaching process to improve social skills. Empirically, the study of Riski and Mahaputra (2023) examines variables of student learning outcomes, while this study uses social skills in early childhood. Methodologically, the previous study by Fikri & Derta (2024) used quantitative and qualitative research, while this study used both quantitative research but with experimental methods and a one-group pre-test post-test design. While in the context of Sudin & Abdullah (2023) conducted on 42 4th-grade students in an elementary school, this study was conducted at Darussalam Candi Kindergarten, Thoriqussalam Kindergarten, Masyitoh Kindergarten located in Sidoarjo Regency, with a total sample of 60 students.

Research Question

Early childhood education plays a vital role in forming social skills critical to children's development. Whole brain teaching is an innovative approach that integrates physical, social, and cognitive activities to stimulate different areas of the brain simultaneously, aiming to increase children's engagement and motivation to learn. However, research examining the contribution of this model to early childhood social skills is limited. Thus, the research question in this study is: How does the whole brain teaching model contribute to social skills in early childhood?

Urgency and Purpose of Research

Preschool is a critical period in child development, especially in social skills such as peer interaction, emotion recognition, and communication. This study aims to explore the effectiveness of a holistic whole-brain teaching model, which integrates cognitive, emotional, and physical aspects, in supporting children's social development. With education increasingly moving towards a holistic approach, this research confirms the importance of education focusing on academics and social and emotional skills. This can contribute to improving the quality of early childhood education in Indonesia. In addition, the results can help policymakers design more effective teacher training programs and teaching strategies for preschools. This research also addresses a gap in previous studies that rarely focus on the contribution of the Whole Brain Teaching Model to young children's social skills. This study aims to determine the effect of the Whole Brain Teaching Model on students' social skills.

RESEARCH METHOD

Research Design and Procedure

This study employs a quantitative approach using experimental research methods. The research design implemented is a one-group pre-test and post-test design. Initially, students are given a pre-test (baseline assessment) before the intervention and a post-test (final assessment) after the learning session. Figure 1 shows the research design, while Figure 2 illustrates the flow chart used in this study.

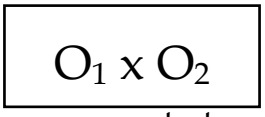

Figure 1. One group pre-test post-test design.

Description:
O1 = Pre-test score before treatment
O2 = Post-test score after treatment
X = Treatment applied using the WBT Model

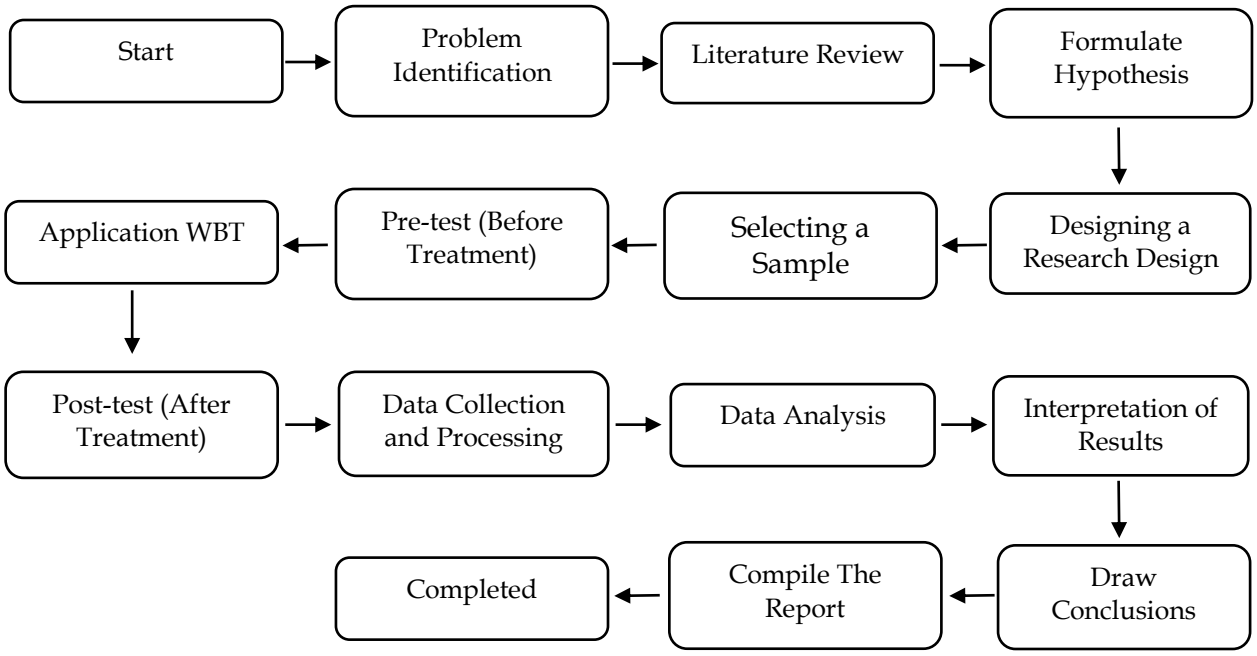

Figure 2. Flowchart of research procedure.

Population, Sample, and Sampling Technique

This research involved students from Darussalam Kindergarten Candi, Thoriqussalam Kindergarten, and Masyitoh Kindergarten in Sidoarjo Regency. The purposive sampling method was employed, resulting in a sample size of 60 respondents.

Data Capture Process

The data was collected through a questionnaire designed to measure social skills. These skills were divided into the following dimensions: peer relationship skills (2 items), self-control (self-management skills, two items), academic skills (2 items), compliance skills (2 items), and assertion skills (2 items).

Data Analysis Process

The data analysis utilized pre-test and post-test measures with the assistance of SPSS 23 software. It included tests for normality and homogeneity and a paired sample t-test, which was used to assess the Whole-Brain Teaching method's effectiveness in improving early childhood social skills.

RESULTS AND DISCUSSION

Results

The results of statistical data obtained from the SPSS 23 application can be presented in Table 1.

Table 1. T-test results.

No.	Dimensions	Pre-test		Post-test		Gain
		Mean	Stdev	Mean	Stdev	
1	Peer relationship skills	2.56	0.521	4.18	0.61	1.62
2	Self-management skills	2.72	0.542	4.24	0.63	1.52
3	Academic skills	2.32	0.605	3.90	0.69	1.58
4	Compliance skills	2.11	0.584	3.93	0.67	1.82

5	Assertion skills	2.28	0.492	3.81	0.58	1.53

Table 1 shows the t-test results to determine the difference in each dimension's average pre-test and post-test scores. The dimension of peer relationship skills shows a gain value of 1.62, the dimension of self-control (self-management skills) shows a gain value of 1.52, the dimension of academic skills shows a gain value of 1.58, the dimension of compliance skills shows a gain value of 1.82, and the dimension of assertion skills shows a gain value of 1.53. Analysis of the t-test results showed a significant increase in each dimension after the intervention. Relationship with peers, self-control, academic ability, compliance, and self-assertion showed positive improvements. This indicates the effectiveness of the program in improving students' skills.

Table 2. Paired sample t-test results.

No.	Dimensions	t-count	t-table	Sig	Description
1	Peer relationship skills	3.02	2.04	0.00	Significant
2	Self-management skills	2.92	2.04	0.00	Significant
3	Academic skills	2.98	2.04	0.00	Significant
4	Compliance skills	3.22	2.04	0.00	Significant
5	Assertion skills	2.93	2.04	0.00	Significant

The results of the paired sample t-test above show that all dimensions have a significance value (2-tailed) <0.05, then Ho is rejected, and Ha is accepted. So, a conclusion is obtained that there is a difference in learning outcomes before and after applying the Whole Brain Teaching model, meaning that there is a positive influence.

Discussion

Effectiveness of the WBT Model

The descriptive statistical analysis reveals notable differences between the pre-test and post-test scores. The pre-test results show a lowest mean value of 2.11, while the post-test results indicate a lowest mean value of 3.81. The highest mean value for the pre-test is 2.72, compared to the post-test, which is 4.24. These findings suggest that the Whole Brain Teaching model effectively enhances social skills in early childhood development.

Through collaborative activities that encourage active interaction between students, effective communication, collaborative learning, and the provision of positive feedback, the WBT Model creates a learning environment that supports the development of strong social skills. By incorporating elements of peer teaching, widely recognized as a valuable educational approach, WBT offers a comprehensive framework engaging students in active learning. Previous research by Immordino-Yang et al. (2019) showed that consistently applying the Whole Brain Teaching model can improve children's social relationships with their peers. With an approach that involves active interaction between teachers and students, children are better trained in communicating, cooperating, and building empathy skills that are important in establishing healthy relationships with their peers (Mahoney et al., 2021). In addition, the development of these social skills also enables student empowerment in the learning process, increases motivation, and provides better active learning opportunities, including the development of cognitive skills such as problem-solving and critical thinking.

The study conducted by Zhao et al. (2021) found that the Whole Brain Teaching model helps children develop self-control skills. In this model, children are invited to actively participate in the learning process by monitoring and regulating their behavior

(Bailey & Jones, 2019). An example of applying this strategy is the "Class-Yes" method, which teaches students to respond quickly to teacher commands, thus honing impulse control and compliance skills. In addition, using clear and consistent rules also plays a vital role in developing self-control skills (Duckworth et al., 2019). By knowing boundaries, children can understand the consequences of their actions and develop more effective self-control strategies. Moreover, knowing that specific actions will result in negative consequences, they learn to control themselves and choose more appropriate behaviors.

In addition, the WBT model focuses on utilizing different brain dominance or learning preferences to develop cognitive skills through a holistic teaching approach. This model is rooted in brain-based teaching strategies and aims to optimize the learning experience by entirely using students' potential (Yang, 2018). One of the main advantages of the WBT model is its holistic approach to various learning styles. This model can facilitate a more effective and enjoyable learning process by understanding that each student has different learning preferences. Through the "Teach-Okay" technique, students can teach the material to their classmates. This helps improve students' understanding of the material and strengthens their communication skills and presentation abilities. The use of the WBT model also positively impacted the overall classroom environment (Müller & Mildenberger, 2021; Qureshi et al., 2023). By encouraging collaboration between students and building their social skills, the model helps to create a positive and supportive learning atmosphere. This can increase students' motivation and interest in learning (Dörnyei & Muir, 2019).

The Whole Brain Teaching model has also shown effectiveness in improving social skills, particularly compliance. Research conducted by Hedegaard (2020) highlighted that the Whole Brain Teaching model can help develop children's obedience skills. By applying clear rules and positive reinforcement in the form of social responsiveness, this model helps children understand the consequences of their behavior and motivates them to follow instructions well (McCollow & Hoffman, 2019). Using positive reinforcement through social response, such as the "Class-Yes" technique, provides immediate feedback that motivates children to act according to the rules. When they receive positive responses from teachers and classmates for desired behaviors, this acknowledges their efforts and provides psychological encouragement to continue to comply with the rules. Moreover, the open use of praise when students demonstrate appropriate behavior is an effective strategy for building internal motivation to comply with the rules. By feeling appreciated and recognized for their positive actions, children are more likely to be motivated to continue following the rules and exhibiting expected behaviors.

In addition, the results of a study conducted by Melhem (2021) also showed that the Whole Brain Teaching model can improve children's self-assertiveness at an early developmental stage. In its application, WBT combines teaching techniques that involve physical, verbal, visual, and emotional activities, creating a holistic and holistic learning experience. This model uses hand signals, verbal repetition, and group interaction to encourage students to participate more actively in the learning process so that children do not just passively receive information but are also actively involved in processing and delivering the information. This active participation encourages students to express their opinions and ideas more confidently. In addition, WBT emphasizes fun and interactive learning, increasing students' intrinsic motivation as they feel happy and engaged in learning and reducing anxiety in presentation or discussion situations (Al

Masaeed, 2022). This model also supports the development of social and emotional skills, where students learn to cooperate, respect the opinions of others, and better manage their emotions, which is crucial in building a solid foundation for a child's social and emotional development.

CONCLUSION

Fundamental Finding: Based on the research results and discussion, the Whole Brain Teaching model effectively enhances various aspects of social skills in early childhood development. This conclusion is supported by hypothesis testing using a paired sample t-test. The average pre-test and post-test scores for each dimension show improvement: peer relationship skills increased by 1.62, self-control (self-management skills) by 1.52, academic skills by 1.58, compliance by 1.82, and assertion skills by 1.53. Therefore, the Whole Brain Teaching model has a positive and comprehensive impact on improving social skills in early childhood. **Implication:** Through its inclusive, interactive approach and focus on developing students' potential, the model makes a meaningful contribution to forming healthy personalities and strong adaptability for children in the future. **Limitation:** The effectiveness of WBT largely depends on teachers' skills and personalities in creating a positive and inclusive learning environment. In addition, implementing WBT requires in-depth training for teachers and may not be uniform across all educational contexts. **Future Research:** Further research is needed to examine how WBT can be adapted and used effectively for children with different backgrounds, abilities, and learning styles. In addition, future research could compare WBT with other early childhood learning models to help determine which approaches are most effective in developing social skills in children.

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