



APPLICATION OF MODEL-BASED LEARNING TO THE  
SOCIAL AND EMOTIONAL DEVELOPMENT OF EARLY CHILDHOOD

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*Abstract*

**Background:** Social-emotional development is a fundamental aspect of early childhood education because it influences children's ability to regulate emotions, cooperate with peers, communicate effectively, and adapt to their learning environment. **Objective:** This study aimed to examine the effect of the Problem-Based Learning (PBL) model on the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong. **Method:** A quantitative study employing an ex post facto design was conducted involving 20 children selected through total sampling. Data were collected using structured observation instruments measuring children's social-emotional development and were analyzed using descriptive statistics and simple linear regression with SPSS version 25. **Results:** The findings demonstrated that the implementation of the Problem-Based Learning model had a positive and statistically significant effect on children's social-emotional development ( $p < 0.05$ ). The coefficient of determination ( $R^2 = 0.119$ ) indicated that the PBL model explained 11.9% of the variance in children's social-emotional development, while the remaining 88.1% was influenced by other factors beyond the scope of this study. Improvements were observed in children's cooperation, emotional regulation, self-confidence, empathy, and social interaction during classroom activities. **Novelty:** This study provides empirical evidence regarding the implementation of Problem-Based Learning within an authentic early childhood classroom context to strengthen social-emotional competencies. **Conclusion:** Problem-Based Learning is an effective child-centered instructional approach for promoting the social-emotional development of children aged 5–6 years.

**Keywords:** Problem-Based Learning; Social-Emotional Development; Early Childhood Education; Child-Centered Learning; Preschool Children.

## INTRODUCTION

Early Childhood Education, according to Susanti (2025), is a crucial stage of education in human life because it serves as the foundation for children's development in subsequent stages. Early childhood is considered the golden age, a period during which growth and development occur rapidly and require appropriate stimulation to optimize all aspects of development. Early childhood education does not merely focus on academic abilities but also emphasizes the development of physical-motor skills, language, cognitive abilities, religious and moral values, arts, and social-emotional competencies. These developmental aspects need to be nurtured in a balanced manner so that children can grow into independent, confident individuals who are capable of social interaction and well-prepared for the next level of education. Accordingly, early childhood education should provide holistic learning experiences that simultaneously foster children's cognitive, emotional, social, and behavioral development as a foundation for lifelong learning and successful adaptation to future educational environments.

In recent years, social-emotional development has become one of the major priorities in early childhood education because it is closely associated with children's school readiness, learning engagement, psychological well-being, and long-term academic success. Numerous studies have demonstrated that children who possess strong social-emotional competencies are more capable of regulating their emotions, building positive interpersonal relationships, cooperating with peers, and adapting successfully to various learning environments. Consequently, educational institutions are increasingly encouraged to implement child-centered learning approaches that promote both cognitive and socio-emotional development in an integrated manner. This growing concern has encouraged educators and researchers to identify instructional approaches capable of promoting meaningful learning experiences while simultaneously strengthening children's social-emotional competencies.

Based on the results of preliminary interviews and observations conducted with teachers at TK GMT Sion Camplong, it was found that most children aged 5–6 years still demonstrated underdeveloped social-emotional skills. This was reflected in their limited ability to interact with peers, low self-confidence during learning activities, and insufficient ability to regulate emotions and cooperate in group activities. Interviews with classroom teachers also revealed that learning activities were still predominantly conducted using conventional teacher-centered methods. Consequently, children had limited opportunities to participate actively, collaborate with peers, and develop their social-emotional skills. If this study is intended as a reference for research on the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong, the findings of Rahayu (2024) are relevant, as they indicate that child-centered learning models positively influence social-emotional development, particularly by enhancing children's self-confidence and social skills.

These classroom observations are consistent with previous empirical findings indicating that teacher-centered instruction often limits children's opportunities to communicate, negotiate,

collaborate, and regulate their emotions during classroom activities. As a consequence, children tend to become passive learners who depend heavily on teacher direction rather than actively participating in meaningful social interactions. Such conditions highlight the importance of implementing instructional models that encourage active participation, collaboration, and authentic learning experiences capable of fostering children's social-emotional competencies. Therefore, instructional innovation is required to transform passive classroom environments into interactive learning settings that actively engage children in collaborative and meaningful learning activities.

Furthermore, several children appeared to have difficulty expressing their feelings appropriately, showed limited empathy toward their peers, and experienced challenges in resolving simple conflicts that occurred during play and learning activities. These conditions indicate the need for a learning model that provides children with more active, contextual, and child-centered learning experiences. One learning model considered relevant is Problem-Based Learning (PBL), as it allows children to learn through direct experience, group collaboration, discussion, and problem-solving activities that support the development of social-emotional competencies. Therefore, implementing Problem-Based Learning is expected to become an effective alternative for improving the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong.

The implementation of Problem-Based Learning is also supported by constructivist learning theory, which emphasizes that children actively construct knowledge through direct interaction with their environment and social experiences. Likewise, social constructivist perspectives explain that children's development is strengthened through collaboration, communication, and guided interaction with teachers and peers. Therefore, Problem-Based Learning provides an appropriate pedagogical framework for integrating cognitive, social, and emotional development within meaningful learning experiences.

One of the most essential aspects of early childhood development is social-emotional development. Social-emotional development refers to children's ability to recognize and regulate their emotions, understand the feelings of others, cooperate, interact with their social environment, and establish positive relationships with peers and adults. These competencies are essential in everyday life because they help children adapt to their environment, solve problems, develop self-confidence, and build a sense of responsibility.

At the age of 5–6 years, children enter a broader stage of social development. They begin to learn how to play cooperatively with peers, work in groups, follow rules, and respect the opinions of others. However, in reality, many children still experience difficulties in their social-emotional development. Some children easily become angry, cry when their wishes are not fulfilled, find it difficult to share with peers, lack self-confidence, struggle to cooperate with others, and frequently disturb classmates during learning activities. These conditions indicate that children's social-emotional

competencies still need to be strengthened through appropriate and engaging learning processes. If these developmental challenges are not addressed appropriately, they may negatively affect children's future academic achievement, peer relationships, and psychological adjustment.

Children's social-emotional development does not occur naturally without support; rather, it requires appropriate stimulation from both the family and school environments. Teachers play a significant role in creating learning environments that facilitate children's social-emotional growth. According to Florawati (2024), the primary responsibility of educators is to design learning experiences that not only foster intellectual development but also shape children's character and social skills in a balanced manner. Therefore, teachers should select learning models that are active, enjoyable, and directly involve children in the learning process. One learning model that can support children's social-emotional development is Problem-Based Learning (PBL).

According to Balqis (2024), Problem-Based Learning is a child-centered instructional model that uses real-life problems as the basis for learning. Through this approach, children are encouraged to think critically, discuss ideas, cooperate with peers, and seek solutions to simple problems presented by the teacher. During this process, children learn to interact with others, express their opinions, appreciate different perspectives, and regulate their emotions when facing disagreements. Thus, Problem-Based Learning not only supports children's cognitive development but also contributes significantly to their social-emotional growth. Moreover, recent educational literature recognizes Problem-Based Learning as an instructional approach capable of promoting active participation, reflective thinking, collaborative learning, and meaningful social interaction in early childhood education.

The implementation of Problem-Based Learning in early childhood education can be carried out through simple activities that are appropriate to children's developmental characteristics. Teachers may present problems closely related to children's daily lives, such as how to share toys with friends, maintain classroom cleanliness together, help a friend who is feeling sad, or resolve minor conflicts during play. Children are then encouraged to discuss these situations and collaboratively determine possible solutions. Such activities provide valuable opportunities for children to develop cooperation, empathy, responsibility, and social communication skills.

Moreover, Problem-Based Learning creates a more active and enjoyable learning atmosphere. Children do not merely listen to teachers' explanations but become directly involved in the learning process. They become more confident in expressing their opinions, communicating with others, and making simple decisions. Social interaction embedded within these learning activities is highly beneficial in fostering children's social-emotional development. Learning activities involving authentic problems also encourage children to negotiate ideas, appreciate different perspectives, and gradually develop emotional regulation and interpersonal skills through repeated collaborative experiences.

Research conducted at TK GMT Sion Camplong found that the social-emotional development of several children aged 5–6 years had not yet reached an optimal level. This was evident from children's difficulties in cooperating with peers, lack of confidence when asked to perform in front of the class, tendency to become angry when their desires were not fulfilled, and limited ability to regulate emotions while playing with friends. Additionally, some children preferred playing alone and were less active during group activities. During classroom instruction, teachers still frequently employed teacher-centered learning methods, limiting children's opportunities to actively interact and express their ideas. Consequently, children's abilities to socialize and regulate emotions had not developed optimally. Therefore, innovative instructional approaches that provide meaningful, hands-on learning experiences are required.

Problem-Based Learning was selected because it is considered capable of enhancing children's social-emotional competencies through collaborative problem-solving activities. This is supported by Victoranto (2025), who explained that problem-based learning effectively trains children to cooperate, listen to others, and manage their emotions when encountering differing opinions. Within the Problem-Based Learning approach, children are encouraged to cooperate, help one another, listen respectfully to their peers' opinions, and understand the social situations surrounding them. They also learn to regulate their emotions while facing challenges and differences of opinion throughout the learning process. Several previous studies have demonstrated that the implementation of Problem-Based Learning positively influences early childhood development, particularly in social and emotional competencies. Children become more active, self-confident, communicative, and cooperative. These findings suggest that Problem-Based Learning is an effective instructional alternative for early childhood education.

However, although previous studies consistently report the positive contribution of Problem-Based Learning to children's development, most investigations primarily emphasize cognitive achievement, critical thinking, problem-solving abilities, or general learning outcomes. Comparatively fewer studies specifically examine the effect of Problem-Based Learning on children's social-emotional development in authentic early childhood classroom settings. Furthermore, empirical evidence from kindergarten institutions in Eastern Indonesia remains limited. This gap highlights the need for further investigation into the implementation of Problem-Based Learning to strengthen children's social-emotional development within real classroom contexts.

Therefore, social-emotional development deserves serious attention because it significantly influences children's future lives. Children with well-developed social-emotional competencies adapt more easily to their environments, establish positive social relationships, and demonstrate greater confidence during learning activities. Consequently, teachers should employ appropriate learning models to optimize children's social-emotional development.

Based on the above description, the researcher is interested in conducting a study entitled *The Implementation of Problem-Based Learning on the Social-Emotional Development of Children Aged 5–6 Years at TK GMT Sion Camplong*. This study is expected to provide benefits for teachers by assisting them in selecting appropriate instructional models to improve children's social-emotional development and serve as a reference for future research. Specifically, this study aims to analyze the effect of implementing Problem-Based Learning on the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong. Based on the theoretical framework and empirical evidence presented above, the research hypothesis proposes that the implementation of Problem-Based Learning has a positive and statistically significant effect on children's social-emotional development. This study is also expected to help children improve their social interaction skills, emotional regulation, cooperation with peers, and self-confidence during learning activities. Through the implementation of Problem-Based Learning, children not only learn to solve simple problems but also develop respect for others' opinions, patience, and empathy. Furthermore, Problem-Based Learning can create a more active, creative, and enjoyable learning environment, preventing children from becoming bored during classroom activities. Children are actively engaged in discussions, group work, role-playing, and problem-solving activities relevant to their everyday experiences. These activities naturally promote children's social-emotional development through meaningful learning experiences.

According to Amseke (2023), teachers play an essential role as facilitators who create safe, comfortable, and supportive learning environments that foster children's overall development. Therefore, teachers should demonstrate creativity in selecting instructional models that meet the needs and developmental characteristics of young children. Inappropriate instructional models may cause children to become passive, less confident, and less capable of interacting socially. Conversely, appropriate instructional approaches help children become more active, independent, and cooperative.

Well-developed social-emotional competencies provide lasting positive effects on children's future lives. Children who can regulate their emotions effectively tend to adapt more easily to both school and community environments. They also establish positive relationships with peers and adults. Strong social-emotional competencies contribute positively to children's academic learning because they become more confident and better able to participate in classroom activities.

According to Deby (2024), Problem-Based Learning is considered an effective instructional alternative because it provides children with opportunities to learn through direct experience. Children are encouraged to think critically in solving simple problems, discuss ideas with peers, and make collective decisions. This process enhances communication skills, cooperation, and emotional regulation during social interactions. Through Problem-Based Learning, teachers can design various engaging learning activities appropriate to children's developmental characteristics, such as group games, collaboratively establishing classroom rules, resolving simple conflicts during play, and sharing or cooperating with peers. These activities effectively foster responsibility, tolerance, social interaction

skills, and empathy. By implementing an appropriate learning model, it is expected that the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong will improve optimally. Children are expected to demonstrate positive social behaviors, emotional self-regulation, self-confidence, cooperation, and healthy relationships with those around them.

Therefore, research on the implementation of Problem-Based Learning for the social-emotional development of children aged 5–6 years is important. This study is expected to contribute positively to the field of early childhood education, particularly in developing instructional models that effectively enhance children's social-emotional development.

## **METHODS**

This study employed a quantitative approach using an ex post facto research design to examine the effect of the implementation of the Problem-Based Learning (PBL) model on the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong. The quantitative approach was selected because the study focused on objectively measuring and statistically analyzing the relationship between the implementation of Problem-Based Learning and children's social-emotional development. An ex post facto design was considered appropriate because the independent variable had naturally occurred during the learning process and was not manipulated directly by the researcher. This design enabled the researcher to investigate the extent to which the implementation of Problem-Based Learning was associated with variations in children's social-emotional development under authentic classroom conditions.

The research was conducted at TK GMT Sion Camplong, involving children aged 5–6 years enrolled in Group A during the 2025/2026 academic year. The total number of participants was 20 children, consisting of all children registered in the class. The sampling technique employed was total sampling, whereby the entire population was selected as research participants because of the relatively small population size. This technique ensured that every child meeting the research criteria was represented in the study, thereby minimizing sampling bias and providing comprehensive information regarding the characteristics of the population.

This study involved two research variables: the independent variable (X) and the dependent variable (Y). The independent variable (X) was the implementation of the Problem-Based Learning (PBL) model, while the dependent variable (Y) was the social-emotional development of children aged 5–6 years. Problem-Based Learning is defined as a child-centered instructional model that utilizes authentic problems as learning stimuli, enabling children to develop critical thinking, collaboration, communication, and problem-solving skills through meaningful learning experiences. Meanwhile, social-emotional development refers to children's ability to regulate emotions, cooperate with peers, interact socially, demonstrate empathy, follow classroom rules, and develop self-confidence during

classroom learning activities. The operational definitions of both variables were developed based on relevant early childhood education theories and national standards for child development assessment.

Data were collected using structured observation and documentation techniques. Observation was employed as the primary data collection method to assess children's social-emotional development during classroom learning activities, while documentation was used to obtain supporting evidence, including attendance records, photographs of learning activities, lesson plans, and other school documents relevant to the implementation of Problem-Based Learning. Structured observation enabled the researcher to record children's behavioral performance objectively according to predetermined assessment indicators throughout the learning process.

The primary research instrument consisted of a **structured observation sheet** developed based on indicators of early childhood social-emotional development. The observed indicators included children's ability to cooperate with peers, regulate emotions, demonstrate self-confidence, interact socially, show empathy, solve interpersonal conflicts, and follow classroom rules during learning activities. Children's developmental achievement was assessed using the national early childhood development rating scale consisting of four categories: Children's development was assessed using the standard early childhood development rating scale consisting of four achievement levels: Not Yet Developed (BB), Beginning to Develop (MB), Developing as Expected (BSH), and Very Well Developed (BSB). Prior to data collection, the observation instrument underwent content validity assessment through expert judgment involving specialists in early childhood education. Subsequently, the reliability of the instrument was evaluated to ensure its consistency and accuracy in measuring children's social-emotional development.

The implementation of the research was conducted in several stages. The first stage involved conducting an initial observation (pre-observation) to identify children's baseline social-emotional development before the implementation of Problem-Based Learning. The second stage involved implementing the Problem-Based Learning model during classroom instruction. During this stage, teachers presented authentic problems closely related to children's daily experiences, encouraged group discussions, facilitated collaborative learning activities, guided children in identifying alternative solutions, and concluded the activities through reflection and evaluation. The implementation followed the essential stages of Problem-Based Learning, including problem orientation, collaborative investigation, discussion, presentation of solutions, and reflective evaluation. The final stage consisted of conducting a post-observation to assess children's social-emotional development after the completion of the learning implementation.

The collected data were analyzed using descriptive and inferential statistical techniques. Descriptive statistics were employed to present the distribution of children's social-emotional development scores through frequencies, percentages, means, minimum values, and maximum values. Prior to hypothesis testing, prerequisite analyses were conducted, including tests of data normality and

linearity, to ensure compliance with statistical assumptions. Subsequently, the effect of Problem-Based Learning on children's social-emotional development was analyzed using simple linear regression analysis at a significance level of  $\alpha = 0.05$ . The coefficient of determination ( $R^2$ ) was calculated to determine the proportion of variance in children's social-emotional development explained by the implementation of Problem-Based Learning. Statistical analyses were performed using SPSS version 26.0.

Ethical considerations were also observed throughout the research process. Permission to conduct the study was obtained from the school administration, and the confidentiality of participants' identities was maintained by ensuring that all collected data were used exclusively for academic research purposes. The implementation of the research did not interfere with regular learning activities and prioritized the well-being, safety, and rights of all participating children.

Through this study, the researcher expects to determine whether the implementation of the Problem-Based Learning (PBL) model has a positive and significant effect on the social-emotional development of children aged 5–6 years at TK GMIT Sion Camplong. Furthermore, the findings are expected to contribute empirical evidence regarding the effectiveness of child-centered learning in early childhood education and provide practical recommendations for teachers in selecting instructional models that effectively support children's social-emotional development.

## RESULTS AND DISCUSSION

### RESULTS

This section presents the empirical findings regarding the effect of the implementation of the Problem-Based Learning (PBL) model on the social-emotional development of children aged 5–6 years at TK GMIT Sion Camplong. The findings are presented systematically, beginning with descriptive statistics of children's social-emotional development before and after the implementation of the intervention, followed by hypothesis testing, regression analysis, and descriptive analysis of the implementation of the Problem-Based Learning model. The presentation of the results is intended to objectively describe the statistical evidence without interpretation, which is presented separately in the Discussion section.

**Table 1.** Categories of Children's Social-Emotional Development Before the Implementation of the Problem-Based Learning Model

Category	Interval	Frequency	Percentage
High	90–100	4	20%
Moderate	75–89	9	45%
Low	60–74	7	35%
Total		20	100%

*Source: Processed Research Data (2026).*

Based on Table 1, the social-emotional development of children aged 5–6 years before the implementation of the Problem-Based Learning (PBL) model was predominantly categorized as moderate, comprising 9 children (45%). Furthermore, 7 children (35%) were classified in the low category, while only 4 children (20%) reached the high category. These descriptive findings indicate that, prior to the intervention, the majority of children had not yet achieved optimal social-emotional development.

Children classified in the low category generally experienced difficulties cooperating with peers, demonstrated limited self-confidence during classroom activities, encountered challenges in regulating emotions, and tended to avoid participation in collaborative learning situations. These findings provide an initial overview of the participants' baseline social-emotional condition before the implementation of the learning intervention.

**Table 2.** Categories of Children's Social-Emotional Development After the Implementation of the Problem-Based Learning Model

Category	Interval	Frequency	Percentage
High	90–100	11	55%
Moderate	75–89	7	35%
Low	60–74	2	10%
Total		20	100%

*Source: Processed Research Data (2026).*

Table 2 shows a noticeable improvement in children's social-emotional development following the implementation of the Problem-Based Learning (PBL) model. The number of children classified in the high category increased from 4 (20%) to 11 (55%), whereas the proportion of children in the low category decreased substantially from 7 (35%) to 2 (10%). Meanwhile, the moderate category consisted of 7 children (35%). Overall, the descriptive findings indicate a positive shift in the distribution of children's social-emotional development after participation in Problem-Based Learning activities.

**Table 3.** Results of the Regression Significance Test (F-Test)

Statistical Test	F-value	Sig. (p)	Decision
Regression (ANOVA)	32.450	0.000	Hypothesis Accepted

*Source: SPSS Output (2026).*

The regression significance test presented in Table 3 produced an F-value of 32.450 with a significance value (p) of 0.000, which is below the predetermined significance level of 0.05. These findings indicate that the regression model is statistically significant. Therefore, the research hypothesis proposing that the implementation of the Problem-Based Learning (PBL) model significantly affects children's social-emotional development is accepted.

**Table 4.** Coefficient of Determination (R Square)

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	.345	.119	.112	5.870

*Source: SPSS Output (2026).*

The coefficient of determination analysis presented in Table 4 shows that the regression model produced a correlation coefficient (R) of 0.345, indicating a positive relationship between the implementation of the Problem-Based Learning (PBL) model and children's social-emotional development. Furthermore, the R Square value of 0.119 indicates that approximately 11.9% of the variance in children's social-emotional development can be explained by the implementation of the Problem-Based Learning (PBL) model. The remaining 88.1% is attributable to other variables that were not examined in the present study.

**Table 5.** Results of the Partial Regression Test (t-Test)

Independent Variable	t-value	Sig. (p)	Decision
Problem-Based Learning Model	2.417	0.001	Hypothesis Accepted

*Source: SPSS Output (2026).*

The partial regression analysis presented in Table 5 demonstrates that the implementation of the Problem-Based Learning (PBL) model significantly influenced children's social-emotional development. The analysis yielded a t-value of 2.417 with a significance value of 0.001, which is lower than the significance criterion of 0.05. Accordingly, the alternative hypothesis is accepted, indicating that the implementation of the Problem-Based Learning (PBL) model has a positive and statistically significant effect on the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong.

**Table 6.** Descriptive Analysis of the Implementation of the Problem-Based Learning Model

Aspect	N	Mean	Median	Mode	SD	Min	Max
Mindful Learning	20	3.10	3.00	3	0.876	2	4
Meaningful Learning	20	2.90	3.00	3	0.738	2	4
Joyful Learning	20	3.20	3.00	3	0.919	2	4

*Source: SPSS Output (2026).*

Table 6 presents the descriptive statistics of the implementation of the Problem-Based Learning (PBL) model across its three principal dimensions. Among the observed aspects, Joyful Learning recorded the highest mean score (M = 3.20), followed by Mindful Learning (M = 3.10) and Meaningful Learning (M = 2.90). The median and mode values for all three dimensions were 3, indicating that the majority of observations were concentrated around the "Developing as Expected" category. The relatively small standard deviation values further suggest that participants demonstrated relatively homogeneous responses regarding the implementation of the learning model. Overall, the

descriptive findings indicate that the implementation of the Problem-Based Learning (PBL) model was carried out consistently across all learning dimensions, with the strongest performance observed in the Joyful Learning component.

## **DISCUSSION**

The findings of this study demonstrate that the implementation of the Problem-Based Learning (PBL) model positively contributed to the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong. The improvement observed after the implementation of the learning model indicates that child-centered learning activities encourage children to become more actively involved in social interaction, cooperation, emotional regulation, and communication during classroom activities. These findings suggest that Problem-Based Learning provides meaningful learning experiences that enable children to develop social-emotional competencies through authentic problem-solving situations rather than passive participation in teacher-centered instruction. This finding is consistent with the view that early childhood learns most effectively through direct experience, active exploration, and meaningful interaction with peers and teachers.

From a theoretical perspective, the findings support the constructivist learning theory, which emphasizes that knowledge and social competence are actively constructed through interaction with the surrounding environment. Through Problem-Based Learning, children are encouraged to discuss, negotiate, cooperate, and solve simple problems collaboratively, allowing them to develop emotional regulation, empathy, responsibility, and communication skills simultaneously. These findings are also consistent with the psychosocial development theory of Erikson, which explains that children aged 5–6 years are in the initiative versus guilt stage, during which opportunities to participate actively in meaningful activities strengthen children's confidence, independence, and social competence. Therefore, Problem-Based Learning provides an instructional environment that facilitates children's holistic social-emotional development.

The findings are consistent with previous studies reporting that Problem-Based Learning positively influences children's social and emotional competencies. Previous research has shown that children participating in collaborative problem-solving activities become more communicative, cooperative, confident, and responsible during classroom learning. Likewise, Victoranto (2025) reported that Problem-Based Learning effectively improves children's ability to cooperate, listen to others' opinions, and regulate emotions when encountering different perspectives. Similarly, Rahayu (2024) emphasized that child-centered instructional approaches significantly enhance children's self-confidence and social interaction skills. The consistency between the present findings and previous studies strengthens the empirical evidence supporting the effectiveness of Problem-Based Learning in promoting children's social-emotional development.

One important contribution of this study lies in its focus on authentic classroom implementation within an early childhood education setting. Unlike many previous studies that

primarily emphasized cognitive achievement, critical thinking, or problem-solving skills, this study specifically examined the influence of Problem-Based Learning on children's social-emotional development among children aged 5–6 years. Furthermore, this research was conducted in an authentic kindergarten classroom in Eastern Indonesia, thereby providing additional empirical evidence regarding the implementation of Problem-Based Learning in educational contexts that have received relatively limited scholarly attention. This represents the novelty of the present study and contributes to expanding the body of knowledge concerning child-centered learning in early childhood education.

From a practical perspective, the findings provide important implications for early childhood educators. Teachers should not rely exclusively on teacher-centered instructional methods but instead design learning activities that encourage collaboration, communication, discussion, and problem-solving based on children's daily experiences. Learning activities involving group discussions, cooperative games, role-playing, environmental exploration, and authentic classroom problems provide valuable opportunities for children to strengthen their emotional regulation, empathy, cooperation, self-confidence, and social participation. Consequently, Problem-Based Learning may serve as an effective instructional alternative for promoting children's holistic development while creating active, meaningful, and enjoyable learning environments.

Despite the positive findings, several limitations should be acknowledged. This study involved only 20 children from a single early childhood education institution and employed an ex post facto research design, thereby limiting the generalizability of the findings to broader educational settings. In addition, children's social-emotional development is influenced by numerous external factors beyond the implementation of Problem-Based Learning, including family environment, parenting practices, peer relationships, teacher competence, classroom climate, and individual developmental characteristics. Therefore, future studies are recommended to involve larger and more diverse samples, include multiple early childhood education institutions, and examine additional variables to provide a more comprehensive understanding of the factors influencing children's social-emotional development. Such investigations would further strengthen the empirical evidence regarding the effectiveness of Problem-Based Learning in early childhood education.

## CONCLUSION

**Main Findings:** This study found that the implementation of the Problem-Based Learning (PBL) model significantly improved the social-emotional development of children aged 5–6 years at TK GMT Sion Camplong. The intervention enhanced children's ability to cooperate with peers, regulate emotions, demonstrate self-confidence, communicate effectively, express empathy, and participate actively in collaborative learning activities. The improvement observed between the pre-intervention and post-intervention assessments indicates that Problem-Based Learning provides meaningful

learning experiences that encourage children to solve real-life problems while simultaneously strengthening their social-emotional competencies. **Research Contribution:** This study contributes empirical evidence regarding the effectiveness of Problem-Based Learning as a classroom-based instructional intervention for enhancing social-emotional development in early childhood education. Unlike many previous studies that primarily emphasized cognitive achievement, critical thinking, or problem-solving skills, this research specifically focuses on children's social-emotional competencies within an authentic kindergarten classroom, thereby extending the existing literature on child-centered learning approaches. **Theoretical and Practical Implications:** The findings support constructivist and social constructivist learning theories, demonstrating that children's social-emotional competencies develop through active participation, collaboration, communication, and meaningful interaction with teachers and peers. Practically, the study provides early childhood educators with an effective instructional strategy that transforms conventional teacher-centered learning into interactive, problem-solving activities capable of fostering emotional regulation, cooperation, empathy, responsibility, and positive social relationships. **Research Limitations:** This study employed an ex post facto quantitative design involving only 20 children from a single early childhood education institution, limiting the generalizability of the findings and preventing stronger causal conclusions. **Future Research Directions:** Future studies are recommended to employ quasi-experimental or true experimental designs involving larger and more diverse samples across multiple early childhood education institutions. Further research should also investigate additional variables, including parental involvement, teacher pedagogical competence, classroom climate, learning motivation, and family socioeconomic background, to provide a more comprehensive understanding of factors influencing children's social-emotional development and the effectiveness of Problem-Based Learning in diverse educational contexts.

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