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Effectiveness of Cooperative Integrated Reading and Composition (CIRC) Learning Model Based on Local Wisdom to Improve Reading Skills in Children

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Abstract
This study aims to determine the effectiveness of the cooperative Integrated Reading and Composition (CIRS) learning model based on local wisdom in improving reading skills in children. This research is a type of meta-analysis research. Research data was obtained from 22 studies that met the inclusion criteria. Data was obtained from Google Scholar, ERIC, ScienceDirect, Wiley, and IEEE databases. Data analysis calculates the effect size value with the help of JASP software. The results of the study concluded that the value of the summary effect size was d = 1.010. These findings show that the cooperative Integrated Reading and Composition (CIRS) learning model based on local wisdom significantly affects reading ability in children with a very high influence category. In addition, this research is expected to contribute to future educational and research practices.

Keywords: *CIRC Model; Local Wisdom; Meta-analysis; Reading Ability*

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Introduction
Reading ability is one of the main foundations in literacy mastery, which greatly determines children's success in the learning process at school and in daily life. Reading is not only a means to understand written information, but also contributes to children's cognitive development, such as critical thinking skills, problem-solving, and building insights(Nasichah, 2023; Zulyusri et al., 2023). Children who have good reading skills tend to master other subjects more easily, because reading is the key to understanding material in various fields of study, such as science, mathematics, and social sciences. At a child's age, the brain development period is in an optimal phase to absorb information and build new skills (Widyaningtyas et al., 2024; Hoffman & Pearson, 2000). Reading literacy introduced early on can increase learning capacity and prepare children to face academic challenges at higher levels of education. In addition, the habit of reading at a child's age also plays a role in character formation, such as fostering curiosity, increasing empathy through understanding narrative texts, and strengthening discipline through structured reading habits (Mawaddah et al., 2024).

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However, challenges in improving children's reading skills in Indonesia are still significant, such as low access to relevant reading materials, lack of motivation to read, and less innovative teaching methods(Faozi et al., 2024). This results in disparities in reading ability among students which can have an impact on academic gaps later in life. Therefore, it is necessary to have an interesting, relevant, and contextual learning approach to overcome these problems, so that children's reading skills can develop optimally and sustainably. Low reading ability among children, especially in Indonesia, is one of the fundamental problems in the education system. The results of the Program for International Student Assessment (PISA) survey and various literacy studies show that the literacy level of Indonesian students is still below the international average (Asnur et al., 2024); (Ali et al., 2024; Zulkifli et al., 2022; Dewanto et al., 2023). This is due to various factors, including limited access to quality reading materials, low reading culture in the community, and inequality in the quality of education in urban and rural areas. Children who have low reading skills tend to have difficulty understanding other learning materials, which ultimately has an impact on overall academic achievement (Kurnianti, 2024).

One of the main challenges in developing reading skills is the lack of learning methods that are relevant, interesting, and in accordance with children's needs. Many of the reading learning methods used today are conventional and tend to provide less interactive and enjoyable learning experiences(Utami et al., 2023; Fuad et al., 2023). As a result, children become less motivated to read and understand the text well. The incompatibility of the method with the child's interests is also an obstacle, especially when the reading material or the way of delivery is not associated with their world or values close to daily life.

The integration of cultural context in reading learning methods is still rarely applied systematically, although it has great potential to increase the attractiveness and effectiveness of learning(Leatemia & Frinaldi, 2023). The use of local wisdom, such as folklore, legends, or regional cultural symbols, can make the reading process more meaningful and relevant for children. However, the lack of training for teachers in developing culture-based learning and limited educational resources are obstacles in the implementation of this approach(Zubaidah et al., 2023; Wantu et al., 2024). Therefore, innovations are needed in reading learning methods that not only pay attention to the technical aspects of reading, but also integrate cultural values to build sustainable reading interest and ability. Therefore, there is a need for a learning model that can improve reading skills in children.

Cooperative Integrated Reading and Composition (CIRC) is one of the cooperative learning models designed to improve literacy skills, especially reading and writing, through group cooperation (Sakkir & Haturrahma, 2023). In this approach, students work in small, heterogeneous groups to support each other in completing reading and writing tasks. CIRC integrates a variety of activities, such as reading together, discussing texts, identifying key ideas, and structuring writing based on their understanding. This model aims to create a collaborative learning environment, where each student contributes to the achievement of group goals, thereby increasing their learning motivation and literacy skills collectively (Li et al., 2023; Maruf et al., 2024).

CIRC's key strengths lie in its structured approach that includes components of cooperative learning, critical thinking skills development, and process-oriented evaluation. Through this strategy, students not only improve individual literacy abilities, but also social skills, such as communication, teamwork, and empathy. Additionally, by engaging students in discussions and exchanging ideas, CIRC helps to deepen their understanding of the text and strengthen long-term memory (Syam et al., 2024). The effectiveness of this model has been widely proven through research that shows significant improvements in students' reading comprehension and writing ability compared to conventional methods. With a cooperative and student-centered approach, CIRC can be an effective alternative in literacy learning at various levels of education (Napaporn et al., 2023; Waller, 2024).

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Research by Slavin (2018), which is the basis for the development of this model, reveals that the cooperative approach in CIRC is able to significantly improve students' reading comprehension and writing skills compared to conventional learning methods. Similar research conducted in Indonesia by Yusnita et al. (2020) also shows that the implementation of CIRC is able to increase learning motivation, active student involvement, and literacy learning outcomes. The integration of structured group work within CIRC provides opportunities for students to support each other, share understanding, and develop their social skills throughout the learning process. Research conducted by Suryadi and Wulandari (2022) shows that the use of reading materials based on local wisdom, such as folklore or regional legends, can increase students' interest in reading and understanding texts. Local wisdom makes learning materials closer to students' lives so that they can more easily understand the context and values contained in it (Aslan, 2021). When the CIRC model is applied by utilizing local cultural-based content, as in this study, the results show a significant improvement in reading ability, especially in reading comprehension and students' analytical power of culturally meaningful texts (Ristanto et al., 2021).

Most of the research on the CIRC model focuses on applying the method in general without adapting learning materials based on local culture. This research fills this gap by utilizing local wisdom as the core of reading materials (Behice, 2016). In addition, they tend to use a generic national curriculum-based approach without considering the potential of local wisdom in increasing reading interest. This research offers a new perspective by utilizing culture as a learning resource. However, many related studies regarding the CIRC learning model have not found an effect size CIRC model based on local wisdom. So, it is necessary to conduct a meta-analysis to get a deep conclusion related to the CIRC learning model based on local wisdom to improve reading skills in children. Based on this, this study aims to determine the effectiveness of the learning model cooperative Integrated Reading and Composition (CIRS) based on local wisdom in improving reading skills in children.

Methodology

This study uses a meta-analysis approach to determine the effectiveness of the cooperative Integrated Reading and Composition (CIRS) learning model based on local wisdom in improving reading skills in children. Meta-analysis is a research approach that evaluates previous research statistically to reach a conclusion (Tamur et al., 2020; Badawi et al., 2023; Nurtamam et al., 2023; Zulyusri et al., 2023; Uluk et al., 2024). The meta-analysis research procedure is 1) determining the research inclusion criteria, 2) collecting data and coding, and 3) analyzing the data statistically, can be seen in Figure 1.

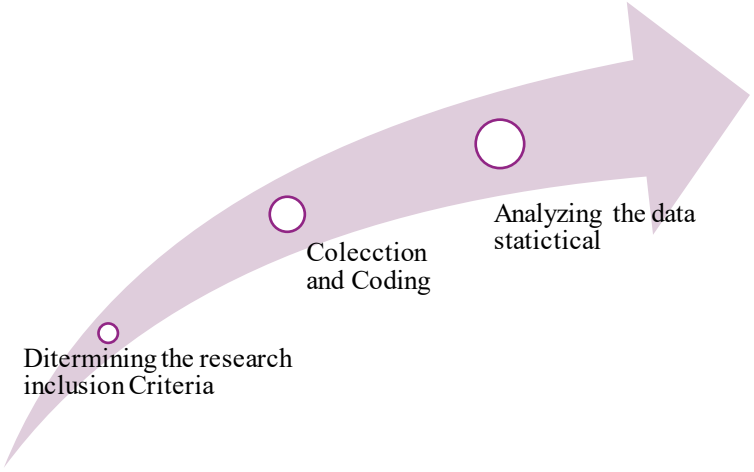

Figure 1. Meta-analysis procedure

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Eligibility Criteria

In the process of searching for data through the Google Scholar, ScienceDirect, Wiley, ERIC, ProQuest, Fronteins and Web of Science databases, the research must meet several inclusion criteria, namely 1) the research is published in the 2021-2024 range, 2) the research is published in a journal indexed by SINTA, Scopun or Web of Science, 3) The research must use experimental classes of Ethno-Physics-based problem-based learning models and other classes of conventional learning models, 4) All studies must have complete data to calculate the effect size value. From the data search, 24 studies were obtained that met the inclusion criteria published in 2020-2024 which can be seen in Table 2.

Data Collection

To obtain valid research data related to the effectiveness of the cooperative Integrated Reading and Composition (CIRS) learning model based on local wisdom to improve reading skills in children collected from Google Scholar, ScienceDirect, Wiley, ERIC, ProQuest, Fronteins and Web of Science databases and frontenists. The keywords for data search are " Jigswal Model", "Ethno-religious Based Jigsaw Model", The Influence of ethno-religious Jigswa Model on Students' Critical Thinking Skills", "Islamic Religious Education Learning".

Statistical Analysis

Data analysis in this study calculates the effectiveness of ethno- religius based jigsaw model to improve critical thinking skill of islamic religius education students in indonesia. According to (Borenstein et al., 2007) The stages of data analysis in the meta-analysis can be seen in (Figure 1.). Furthermore, the criteria for the effect size value in the study can be seen in Table 1.

Table 1. Category Effect Size Value

Effect Size	Category
Between -0.15 and 0.15	No effect
Between 0.15 and 0.40	Small Effect
Between 0.40 and 0.75	Moderate effect
Between 0.75 and 1.10	High Effect
Between 1.10 and 1.45	Very high effect
1.45 or higher	Amazing effect

Suorce: (Borenstein et al., 2007; Bachtiar et al., 2023; Tamur et al., 2020; Nurtamam et al., 2023; Solissa et al., 2023; Setiawan et al., 2022)

Result and Discussion

Based on the results of a data search through the database, 22 studies/articles met the inclusion criteria. Table 2 shows the effect size and error standard.

Based on Table 2, the effect size value of the 22 studies ranged from 0.29 to 2.17. According to Borenstein et al., (2007) Of the 24 effect sizes, 7 studies had medium criteria effect sizes, and 15 studies had high criteria effect size values. Furthermore, 22 studies were analyzed to determine an estimation model to calculate the mean effect size. Table 3 shows the analysis of the fixed and random effect model estimation models.

Based on Table 3, a Q value of 125.331 was obtained higher than the value of 61.672 with a coefficient interval of 95% and a p value of 0.001 <. The findings can be concluded that the value of 22 effect sizes analyzed is heterogeneously distributed. Therefore, the model used to calculate the mean effect size is a random effect model. Furthermore, checking publication bias through funnel plot analysis and Rosenthal fail safe N (FSN) test (Tamur et al., 2020; Badawi et al., 2022; Ichsan et al., 2023b; Borenstein et al., 2007; Bachtiar et al., 2023). The results of checking publication bias with funnel plot can be seen in Figure 2.

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Table 2. Effect Size and Standard Error Every Research

Code Jurnal	Years	Effect Size	Standard Error
AK 1	2021	1.20	0.38
AK 2	2021	0.82	0.23
AK 3	2023	0.51	0.17
AK 4	2023	1.18	0.40
AK 5	2023	2.17	0.48
AK 6	2024	2.07	0.33
AK 7	2023	1.82	0.36
AK 8	2024	1.67	0.44
AK 9	2021	0.92	0.39
AK 10	2020	0.83	0.28
AK 11	2020	1.02	0.30
AK 12	2024	0.96	0.30
AK 13	2024	1.19	0.45
AK 14	2021	1.73	0.37
AK 15	2022	0.66	0.21
AK 16	2022	0.59	0.19
AK 17	2023	0.29	0.14
AK 18	2024	0.69	0.25
AK 19	2024	1.15	0.38
AK 20	2024	0.73	0.29
AK 21	2021	0.77	0.33
AK 22	2023	1.05	0.29

Table 3. Fixed and Random effect

	Q	df	p
Omnibus test of Coefficients Model	61.672	1	< 0.001
Test of Residual Heterogeneity	125.231	21	< 0.001

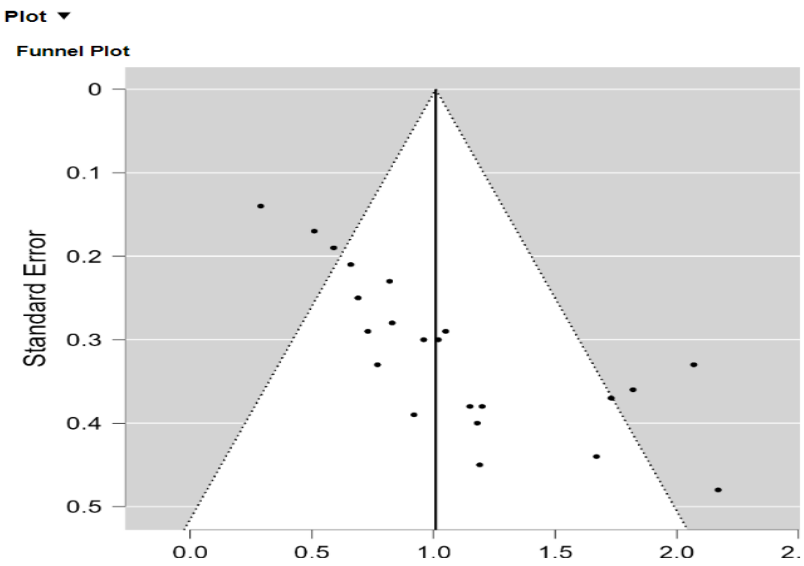

Figure 2. Funnel Plot

Based on Figure 2, the analysis of the funnel plot is not yet known whether it is symmetrical or asymmetrical, so it is necessary to conduct a Rosenthal Fail Safe N (FSN) test. The results of the Rosenthal Fail Safe N calculation can be seen in Table 4.

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Tabel 4. Fail Safe N

File Drawer Analysis			
	Fail Safe N	Target Significance	Observed Significance
Rosenthal	2010	0.050	< 0.001

Based on Table 4, the Fail Safe N value of 2010 is greater than the value of 5k + 10 = 5(22) + 10 = 110, so it can be concluded that the analysis of 22 effect sizes in this data is not biased by publication and can be scientifically accounted for. Next, calculate the p-value to test the hypothesis through the random effect model. The results of the summary effect model analysis with the random effect model can be seen in Table 5.

Tabel 5. Summary Effect Size

Coefficient						
	Estimates	Standard Error	z	p	95% Coefficient Interval	
					Lower	Upper
Intercept	1.010	1.106	9.500	< 0.01	0.801	1.228

Based on Table 5, the summary effect size value (d = 1.010; standard error 1.106) with 95% confidence level lower 0.802 and upper 1.228. This finding explains that the cooperative Integrated Reading and Composition (CIRS) learning model has a significant effect on children's reading skills with a value of z = 9.500; p < 0.001. So, the cooperative Integrated Reading and Composition (CIRS) learning model is effective to improve children's reading ability compared to the conventional model. The Cooperative Integrated Reading and Composition (CIRC) learning model is a cooperative learning approach designed to improve students' reading and writing skills through group work. In this model, students work in teams to read, analyze text, and collaboratively compose written responses (Calderón, 1999). This strategy allows students to develop well-rounded reading skills, including comprehension, critical analysis, and information synthesis. With the integration of local wisdom, this model can provide relevant and interesting context for students, so that they are more engaged in learning (Nasim et al., 2024; Jahanbakhsh et al., 2019).

Local wisdom refers to knowledge, values, and traditions that grow and develop in a particular community. In the context of learning to read, local wisdom can be used to provide reading materials that are relevant to students' life experiences, thereby increasing their interest and motivation (Pionera et al., 2020; Calderon, 2019). For example, folklore, local legends, or traditional poetry can be used as teaching materials that are not only interesting but also enrich students' cultural insights. This is in line with the principle of culture-based education which aims to build student identity through learning. The integration of the CIRC model with local wisdom has several advantages (Ristanto et al., 2021). First, this approach supports contextual learning, making it easier for students to understand the content of the reading. Second, the use of teaching materials based on local wisdom can strengthen students' relationship with their culture, which ultimately increases pride in cultural identity (Li et al., 2023). Third, group work in CIRC allows students to share cultural experiences with each other, resulting in an exchange of knowledge that enriches their insights (Setiawan et al., 2022).

The CIRC model based on local wisdom is effective in improving children's reading skills because it provides a more meaningful learning experience. Through reading activities involving local stories, students can easily understand the context of the text because they are familiar with the culture in which they are based (Alviya et al., 2023). In addition, collaborative learning in groups supports the development of social skills such as discussion and problem-solving, which also contributes to improved reading comprehension. In addition, the

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implementation of the CIRC model based on local wisdom requires support from various parties, including teachers, schools, and communities. Teachers need to be trained to develop teaching materials based on local wisdom and manage cooperative learning effectively (Cheng et al., 2023; Johari et al., 2023). The challenge that may arise is the limitation of reading materials based on local wisdom that suit the needs of students (Nurtamam et al., 2023). Therefore, collaboration with communities and cultural institutions is needed to enrich the source of teaching materials. Therefore, it is recommended that education policies encourage the development of a curriculum that is more responsive to local culture. In addition, further research is needed to explore more deeply the impact of this approach on other aspects, such as students' writing skills and cultural appreciation. Thus, this approach can be widely and sustainably applied in the education system (Behice, 2016).

Conclusion

From this study, it can be concluded that the summary effect size value is d = 1,010 This finding shows that the cooperative Integrated Reading and Composition (CIRS) learning learning model based on local wisdom has a significant effect on reading ability in children with a very high influence category. In addition, this research is expected to contribute to future educational and research practices. The Cooperative Integrated Reading and Composition (CIRC) learning model based on local wisdom is effective in improving reading skills in children because it provides a contextual, collaborative, and meaningful learning experience. By utilizing local wisdom as a teaching material, students can more easily understand the content of the reading that is relevant to their culture and daily life. This approach also motivates students to read with more enthusiasm, as they connect with known stories, legends, or traditions. In addition, group-based learning in the CIRC model encourages social interaction, discussion, and cooperation, so that students' reading skills are strengthened through sharing understanding between group members. The uniqueness of teaching materials based on local wisdom also helps preserve regional culture while simultaneously improving students' literacy skills.

The results of this study provide implications that the integration of local wisdom in learning models such as CIRC can be an effective strategy to improve reading skills while strengthening students' cultural identity. In practice, teachers are advised to develop teaching materials based on local wisdom that are varied and contextual, as well as train students to work in groups to encourage cooperation and share understanding. In addition, these findings also encourage education policymakers to support the development of a curriculum that is more adaptive to local culture. Thus, this approach not only improves students' literacy skills, but also contributes to the preservation of the nation's cultural heritage.

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