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# IMPROVING FOURTH GRADE STUDENTS' CONCEPTUAL UNDERSTANDING OF FRACTIONS AT SD NEGERI 060910 MEDAN DENAI THROUGH THE CULTURALLY RESPONSIVE TEACHING (CRT) APPROACH

**Sintia Yesepa[1], Samsul Bahri[2], Nurlaili[3], Tanzil Hafiz[4]**
**Universitas Al Washliyah (UNIVA) Medan**
Surel: *sintiayesefa235@gmail.com*

***ABSTRACT***

*This study aims to improve the conceptual understanding of fractions among fourth-grade students at SD Negeri 060910 Medan Denai through the implementation of the Culturally Responsive Teaching (CRT) approach. CRT emphasizes integrating students' local cultural backgrounds into the learning process to create meaningful and relatable learning experiences. This research employed a Classroom Action Research (CAR) design conducted in two cycles. Data were collected through observations, interviews, and conceptual understanding tests. The findings indicate a significant improvement in students' fraction comprehension after the application of CRT, both in cognitive achievement and active participation in learning activities. The results demonstrate that contextualizing mathematical concepts using local cultural examples, such as traditional foods and community activities, enhances students' understanding and engagement.*

***Keywords:*** *Fraction Understanding, Culturally Responsive Teaching, Contextual Learning.*

**ABSTRAK**

Penelitian ini bertujuan untuk meningkatkan pemahaman konsep pecahan siswa kelas IV SD Negeri 060910 Medan Denai melalui penerapan pendekatan Culturally Responsive Teaching (CRT). Pendekatan CRT menekankan integrasi latar belakang budaya lokal siswa ke dalam proses pembelajaran untuk menciptakan pengalaman belajar yang bermakna dan kontekstual. Penelitian ini menggunakan desain Penelitian Tindakan Kelas (PTK) yang dilaksanakan dalam dua siklus. Data dikumpulkan melalui observasi, wawancara, dan tes pemahaman konsep. Hasil penelitian menunjukkan adanya peningkatan signifikan dalam pemahaman pecahan siswa setelah penerapan CRT, baik dari segi pencapaian kognitif maupun partisipasi aktif dalam kegiatan pembelajaran. Penggunaan contoh budaya lokal, seperti makanan tradisional dan kegiatan sosial masyarakat, terbukti memperkuat pemahaman konsep dan keterlibatan siswa.

**Kata Kunci:** *Pemahaman Pecahan, Culturally Responsive Teaching, Pembelajaran Kontekstual*



✉ Corresponding author (Perwakilan Tim) :
Email : sintiayasefa235@gmail.com

HP : -
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## INDTRODUCTION

Mathematics is often perceived as a difficult subject, especially when it comes to understanding abstract concepts such as fractions. Understanding fractions requires students to possess strong logical thinking skills and a sufficient ability for symbolic representation (Ningsih & Maulidah, 2023). However, in practice, students often rely on memorization without truly understanding the meaning of fractions (Putra & Wahyuni, 2022). As a result, they face difficulties in solving problems that require fraction skills.

Culturally Responsive Teaching (CRT) offers a potential solution to this issue. According to Gay (2020), CRT is an instructional approach that considers students’ cultural backgrounds in both the planning and implementation of learning. This culturally-based learning allows students to grasp concepts more quickly because the learning activities often involve familiar, real-life contexts (Ladson-Billings, 2021).

For example, in teaching fractions, teachers can use local cultural contexts, such as dividing traditional cakes or regional foods, to make learning more engaging and meaningful (Wahyuni & Syahputra, 2024). Implementing CRT has also been shown to increase students’ motivation, as they feel respected and recognized for their cultural identities in the classroom (Hasibuan & Fadillah, 2021).

Other studies by Fitriani and Zulkarnain (2023) indicate that applying a culturally responsive approach can enhance student engagement, promote positive social interactions, and improve conceptual understanding in mathematics. Furthermore, CRT supports inclusive learning and fosters tolerance and openness toward diversity (Rahmawati et al., 2020).

Considering Indonesia’s rich cultural diversity, it is important to integrate local culture into the learning process. Based on the discussion above, this study aims to improve fourth-grade students’ understanding of fraction concepts at SD Negeri 060910 Medan Denai through the Culturally Responsive Teaching approach. The findings are expected to provide an alternative reference for implementing effective and relevant mathematics learning for students.

## METHOD

This study used a Classroom Action Research (CAR) approach, conducted at SD Negeri 060910 Medan Denai with 28 fourth-grade students as the research subjects. The research was carried out in two cycles, and each cycle consisted of four main stages: planning, action implementation, observation, and reflection. These stages were designed to provide continuous improvement in the learning process based on evaluations at the end of each cycle.

During the learning process, Culturally Responsive Teaching (CRT) was applied as the primary strategy to enhance students’ conceptual understanding of fractions. CRT emphasizes using students’ cultural backgrounds as a starting point to create an effective and efficient learning environment. In this study, fraction materials were linked to local cultural contexts, such as sharing traditional Medan foods (e.g., lemang, layered cake, or bika ambon) and participating in social activities (e.g., community gatherings, mutual cooperation, or distributing zakat). This contextualization aimed to build strong connections between mathematical concepts and students’ daily lives, enabling them to internalize abstract concepts more effectively.

The research instruments included:

1. Observation of student activities, aimed at assessing participation and engagement during the learning process.
2. Interview guides involving both students and teachers to obtain feedback on culturally-based learning implementation.
3. Evaluation tests, including pre-tests and post-tests, used to measure students' learning outcomes in fraction concepts.

Data analysis was carried out using both qualitative and quantitative methods. The quantitative method compared pre-test and post-test scores to determine improvements in learning outcomes, while the qualitative method analyzed observations and interview results to provide a comprehensive view of changes in students' attitudes, interests, and understanding during the learning process.

The CRT approach was applied systematically, starting from selecting cultural contexts relevant to students' daily lives, developing culturally-based problem-solving tasks, to conducting reflective discussions that explore cultural values arising in the learning process. This approach aligns with Siregar & Panggabean (2024), who state that culturally-based learning not only improves students' contextual understanding but also strengthens cultural identity and fosters mutual respect in diversity. Each learning activity was tailored to students' local wisdom to make learning more relevant, meaningful, and enjoyable. Consequently, mathematics learning through the CRT approach is viewed not only from an academic achievement perspective but also in terms of character development and socially contextualized values.

## RESULTS AND DISCUSSION

The results of this study indicate a significant improvement in students' conceptual understanding of fractions after the implementation of the Culturally Responsive Teaching (CRT) approach in the fourth-grade class at SD Negeri 060910 Medan Denai. In Cycle I, only approximately 42% of students were considered to have met the Minimum Mastery Criteria (KKM = 70). However, in Cycle II, a significant increase was observed, with 85% of students achieving or exceeding the KKM. The improvement in scores across cycles demonstrates the effectiveness of CRT as a method that enables students to grasp fraction concepts in a meaningful and contextualized manner.

Observations during the learning process also revealed positive changes in students' attitudes and engagement. Students appeared more enthusiastic, actively participated in group activities, and showed greater confidence when discussing and presenting their work. Additionally, students were able to explain fraction concepts by relating them to cultural contexts provided by the teacher, such as dividing lemang during traditional celebrations or sharing dodol during large family gatherings. These activities made it easier for students to understand fraction concepts because the material was connected to their real-life experiences.

Interview results supported the observational findings. Most students reported that they found it easier to understand fractions when learning activities were linked to real-life experiences, such as sharing traditional foods or participating in local traditions. Some students even stated that they felt they were "learning while playing," as the lessons felt closer to their everyday lives. Similarly, teachers involved in this study reported that students became more active, willing to ask questions, and more engaged during the teaching and learning process.

These findings align with the research of Yuliana and Nurhidayah (2022), which indicates that contextualized learning based on local culture significantly improves mathematics learning outcomes because it helps students connect abstract concepts with concrete experiences. Moreover, Anggraini (2021) emphasized that integrating local culture in learning not only strengthens

students’ cultural identity but also serves as an effective strategy to enhance motivation and academic achievement.

In conclusion, the CRT approach creates an inclusive, relevant, and in-depth learning environment. It supports the achievement of learning objectives holistically, both cognitively and affectively, by linking abstract concepts to students’ lived experiences and cultural backgrounds.

## CONCLUSION

The implementation of the Culturally Responsive Teaching (CRT) approach has been proven effective in enhancing fourth-grade students’ cognitive understanding of fraction concepts at SD Negeri 060910 Medan Denai. Integrating local culture into mathematics learning not only positively impacts students’ academic achievement quantitatively but also improves the overall quality of the learning process.

The percentage of students achieving scores above the Minimum Mastery Criteria (KKM) increased significantly, from **42% in Cycle I** to **85% in Cycle II**. Observations and interviews also revealed that this approach improved students’ enthusiasm, active participation, and self-confidence in understanding abstract fraction concepts. Familiar cultural contexts, such as dividing traditional Medan foods and participating in community social activities, made the learning material more relatable to students’ daily lives, facilitating better understanding and retention.

Overall, CRT demonstrates its effectiveness in creating a learning environment that is inclusive, meaningful, and culturally connected, thereby supporting both cognitive and affective learning outcomes.

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