



## Integrating local culture into IPAS learning: A culturally responsive teaching approach in elementary school

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Article info	Abstract
Culturally responsive Teaching, IPAS, local culture.	Education in the era of globalization faces various challenges, including accommodating cultural diversity, particularly students' diverse cultural backgrounds. This study explores the implementation and integration of local culture through a Culturally Responsive Teaching approach in science and social studies (IPAS) lessons for fourth-grade students at SDN Junrejo 1, Batu. Through Hernandez's theoretical perspective, which covers five aspects, namely: content integration (combining material with cultural context), facilitating knowledge construction (constructing knowledge according to cultural background), reducing prejudice (reducing bias on differences), social Justice (becoming agents of change), and academic development (helping students achieve academic success). This study used a descriptive qualitative research method. The subjects in this study included teachers and fourth-grade students at SDN Junrejo 1, Batu. The results of this study indicate that the school's efforts to develop culture-based activities and the fourth-grade teachers' efforts to integrate local culture into IPAS learning have made learning relevant and meaningful. The conclusion of this study shows that integrating local culture into IPAS learning can help students understand scientific and social concepts in context. With the school's support, students are motivated to recognize, appreciate, and preserve their culture. This study provides a new contribution to implementing Culturally Responsive Teaching (CRT) practices based on Hernandez's five aspects in the context of science and mathematics learning, a topic rarely discussed comprehensively.

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## 1. Introduction

Basic education in Indonesia plays a role in mastering literacy and numeracy and in instilling cultural values, diversity, and national identity in students (Shabartini et al., 2023). The diversity of ethnic groups, religions, and cultures in Indonesia requires a diverse teaching approach so that education can serve as a unifying force amid this diversity (Latif & Hafid, 2021). In line with the mandate of Law Number 20 of 2003 on the National Education System, education in Indonesia must be carried out democratically and fairly, free from any form of discrimination. As stated in Article 4, paragraph (1), education is bound to respect human rights, uphold religious and cultural values, and embrace the nation's rich diversity. This principle makes it clear that education should not exclude or divide, but rather create equal opportunities for every learner—regardless of their cultural background, language, or life experience. It is this spirit of inclusivity that serves as the foundation for building an education system that truly represents Indonesia's diversity and empowers all students to thrive (Diana et al., 2024; Kumi-Yeboah & Amponsah, 2023).

Although this legal structure provides a solid normative basis, the comprehensive implementation of these principles in classroom learning practices remains challenging. The reality that still often occurs in the field shows that traditional teaching approaches still dominate the learning system in elementary schools, are uniform, and ignore students' experiences and cultural identities (Ho & Tang, 2023). One subject affected by this uniform approach is Natural and Social Sciences (IPAS), which has excellent potential to be contextualized with existing local cultures. SOSI learning helps students understand the relationship between natural knowledge and the social and cultural life around them (Gde et al., 2023). However, when the learning process remains conventional and fails to connect the material to students' lives and local cultures, the learning becomes irrelevant and meaningless to them.

Based on initial interviews, it was found that fourth-grade students at SDN Junrejo 1 had difficulty understanding IPAS concepts because the material presented did not take into account the local context familiar to the students' experiences. This harmed learning, making students passive and unmotivated because they find it difficult to connect the concept of ecosystems with the local agricultural practices they are familiar with and the culture they experience in their daily lives, as well as with a learning approach that still focuses on memorization. This situation highlights a gap between the need for inclusive education and current teaching practices, underscoring the necessity of an approach capable of addressing these challenges—specifically, Culturally Responsive Teaching (CRT), or teaching that is responsive to culture. This problem served as the basis for the researcher to conduct an in-depth study of the integration of the Culturally Responsive Teaching (CRT) approach in facilitating the achievement of competencies by fourth-grade students at SDN Junrejo 1 in IPAS learning.

The application of the Culturally Responsive Teaching (CRT) approach at SDN Junrejo 1 Batu, as revealed through initial interviews with fourth-grade teachers and classroom observations, shows that students hail from diverse local cultural backgrounds, including Javanese, Balinese, and Madurese. This diversity calls for teachers to adapt both the school curriculum and regional content to meet the unique needs and potential of each student. Additionally, providing students with opportunities to actively engage in cultural school events—such as Heroes' Day and Independence Day celebrations—strengthens their sense of national pride and cultural identity.

This statement reflects the CRT approach, which serves as a learning tool and a framework for building social Justice in education (Kehl et al., 2024). In the curriculum context, applying CRT is relevant for learning that requires a culture-based approach. This aligns with Law Number 14 of 2005 concerning Teachers and Lecturers, which defines teachers as facilitators, motivators, and learning architects. They are expected to guide students in exploring their interests and talents while mastering good pedagogical principles. Differentiated learning stands out as an effective strategy to help teachers meet the diverse needs of students and achieve optimal learning outcomes, including process differentiation, such as small-group division and project-based learning.

In line with several previous studies, it has been confirmed that teachers who respond to cultural diversity not only deliver material effectively, but also create a safe and inclusive learning space for all students (Alhanachi et al., 2021; Lai, 2023; Vromans et al., 2023; Wallace et al., 2022). The Culturally Responsive Teaching (CRT) approach has been proven to improve academic achievement and build learning motivation, especially for students from minority cultural backgrounds, because learning is linked to their cultural context (Castillo, 2024; Ladson-Billings, 2014).

In Indonesia, research shows that integrating local culture into science learning can enhance students' understanding of the relevance and meaning of the subject (Lapasere et al., 2025; Suma & Subagia, 2024). Although several studies have discussed the application of CRT in the learning process, there remains a lack of specific, comprehensive research on how CRT is implemented across the aspects mentioned by Hernandez (Brown et al., 2022; Ialuna et al., 2024). Therefore, this limitation is the basis for the researcher's assumption that this topic is important to be studied more deeply to enrich the literature and practice of culture-based learning.

Based on the background of the presented problem, the researcher is interested in conducting research on integrating local culture through the Culturally Responsive Teaching approach in IPAS learning to describe teaching practices that are responsive to culture. This study aims to identify how the CRT approach can improve the relevance and effectiveness of IPAS learning and its impact on student engagement, as well as the strategies teachers at SDN Junrejo 1 Batu use to adapt and deliver learning materials that reflect students' cultural backgrounds through the CRT approach. The urgency of this research lies in the need for basic education to create culturally responsive teaching. The research conducted at SDN Junrejo 1 Batu is important because the school is located in an area with cultural diversity from Java, Madura, and Bali. By doing so, it seeks to foster sustainable social development and enhance students' learning competencies, while also offering practical recommendations for teachers to elevate the quality of IPAS instruction grounded in the local culture.

## 2. Method

This research employs a qualitative, descriptive method to present an accurate depiction of current conditions based on field-collected data, without implementing any experimental interventions (Bado, 2021). A properly conducted descriptive study adheres to the fundamental principles of qualitative research (Maritim & Buchori, 2025). The study was carried out at SDN Junrejo 1 Batu during the 2024/2025 academic year, specifically from September to October 2024. This school was purposively selected based on its unique characteristics, namely: (1) it offers an excellent program focused on environmental education; (2) its students come from diverse cultural backgrounds, including Java, Bali, and Madura; and (3) it actively implements a

“Thursday Culture Day” program, which directly supports the integration of cultural values into the learning process. The subjects of this study were selected through purposive sampling: teachers of IPAS subjects and fourth-grade students with diverse backgrounds and active involvement in the learning process. This selection ensured that the data obtained was relevant and representative of the research focus on applying Culturally Responsive Teaching (CRT) in IPAS learning.

The research instruments in this study were developed based on the five fundamental dimensions of Culturally Responsive Teaching (CRT) as defined by C. M. Hernandez et al., (2013) in the following Table 1.

Table 1. Research instrument

No.	Aspects of culturally responsive teaching	Description	Data sources	Method design
1.	Content Integration	Learning activities integrated with culture.	1. Teacher 2. Student	1. Observation 2. Interview 3. Documentation
2.	Facilitating Knowledge Construction	Teachers' ability to guide students in building their knowledge.	1. Teacher 2. Student	1. Observation 2. Interview 3. Documentation
3.	Prejudice Reduction	The role of teachers is to create a safe, comfortable environment and foster positive communication among students.	1. Teacher 2. Student	1. Observation 2. Interview 3. Documentation
4.	Social Justice	The ability of teachers to be agents of change in guiding students.	1. Teacher 2. Student	1. Observation 2. Interview 3. Documentation
5.	Academic Development	The process of teachers in guiding students to improve academic achievement.	1. Teacher 2. Student	1. Observation 2. Interview 3. Documentation

The validity of this qualitative research data was established through source and technique triangulation to assess and ensure data accuracy, which was carried out continuously until the data reached saturation (Bulan & Zainiyati, 2020). This study used the Miles and Huberman analysis technique, which involves collecting observational data by directly observing how the CRT approach is integrated into IPAS learning in the fourth grade of SDN Junrejo 1 Batu. Second, in-depth interviews were conducted personally to obtain information and opinions from teachers and fourth-grade students. Third, the documentation stage, a step that plays a role in the research and provides concrete evidence of the findings from observation and interviews. Then, the data analysis stage includes data reduction —selecting each piece of data obtained—and presenting the data in narrative form based on the research findings, and finally drawing conclusions. The data analysis stage plays an important role in research because it helps researchers find meaning and patterns in the collected data, including rechecking the data's accuracy to reflect the actual conditions (Palmer & Thompson, 2022).

### 3. Results

The research findings on how teachers apply the Culturally Responsive Teaching (CRT) approach in Grade IV Science and Social Studies (IPAS) lessons at SDN Junrejo 1 Batu are

summarized in the table below. Drawing on data collected through interviews, classroom observations, and document analysis, the study highlights the practical implementation of CRT across five dimensions outlined by Hernandez et al. (2013). Table 1 organizes these results according to the specific CRT indicators.

Table 2. Integration of culturally responsive teaching aspects in IPAS learning

Content integration		
Inclusion of content from other cultures	Maintain positive relationships between teachers and students	Give high expectations to students
Teachers introduce the forms of royal heritage according to the provinces in Indonesia. Include examples of Indonesian culture such as Kutai, Singosari, and Majapahit.	Teachers ensure that students are ready to learn. Ask students how they are doing and show appreciation. Help students who have difficulty understanding the material.	Teachers give advice and appreciation to each group that gives a presentation. Provide motivation and reinforcement before and at the start of learning.
Facilitating knowledge construction		
Building students' knowledge	Use of real-life examples	Helping students think critically and openly
Asking provocative questions, revisiting previous lessons when introducing new material. Asking students to read up on the subject before starting the lesson.	Use of atlases and educational videos about cultural heritage. Study tours to educational tourist sites. Linking material about royal heritage to local culture and other cultures.	Teachers introduce cultures from other people's experiences. Using varied learning methods and strategies. Inspiring real examples in the surrounding area, such as the Songgoriti temple located in Batu, East Java.
Prejudice reduction		
Supporting the use of regional languages	Positive interaction among students	Comfortable learning environment
Teachers strongly support the use of the Javanese regional language in students' daily lives, while continuing to prioritize Indonesian. Occasionally, use regional languages to motivate students who have difficulty learning.	Teachers group regular students and students with special needs together so that they can be friends and peer tutors. Students respect their friends who are presenting and expressing their opinions.	Teachers ensure the classroom is clean before starting lessons. Create classroom management systems following student characteristics. Facilitate classrooms with reading corners, classroom cleaning equipment, and student artwork. Implement the 5S habit (smile, greet, shake hands, say hello, be polite)
Social justice		
Teachers as agents of change	Providing opportunities for students to think critically and participate actively	
Using a projector when showing real examples related to the material being studied. Using varied strategies and encouraging students' creativity. Providing maximum guidance, especially to students with learning difficulties. Appreciating every progress made by students. Providing differentiated learning when forming groups through Indonesian children's songs. Demonstrating mutual respect.	Encouraging freedom to ask questions and express opinions. Creating icebreakers during lessons. Students are asked to compose songs to memorize the names of rivers in Indonesia. Asking questions to assess students' level of understanding. Through songs and clues from the teacher, students can think about determining the number of groups. The teacher also allows students to express their creativity in the projects they work on.	
Academic development		
Creating equal opportunities to help students achieve academic success	Using project-based learning that reflects students' learning needs	
Grouping students with special needs with regular students. Providing opportunities for all students to take turns giving presentations. Giving additional individual and group scores to students who are	Teachers use learning methods such as PBL and PJB and adapt them to the needs of the students. Creating a map of the kingdoms that exist in Indonesia according to their location/province. Creating creative clipping	

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enthusiastic and actively participate in project work. Teachers provide handouts for reflection and evaluation of all students and give reinforcement at the end of the lesson.

projects on the theme of traditional ceremonies and Indonesian specialties. Creating dioramas about traditional musical instruments and regional dances.

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Based on the Table 2 above, teachers have performed well across the five Culturally Responsive Teaching (CRT) indicators and have integrated cultural elements into teaching materials to enrich students' knowledge while preserving local culture. **Content integration**, in this first aspect, involves integrating cultural content into learning not only based on the material but also on students' culture, the school culture, and their experiences. This not only helps students understand the nation's history and culture but also instills a sense of pride in their local identity. The following is a statement from a teacher that supports this:

*"One of the topics covered in the 4th-grade IPAS curriculum is the history of religion and its spread in Indonesia, including Hindu-Buddhist and Islamic kingdoms, which are considered part of the culture because each religion brings its own culture. For example, the tradition of selamatan, or thanksgiving ceremonies, and rice planting are part of local customs. History lessons also relate to local culture, such as the discovery of statues in Ngandat that were taken to the Netherlands during the colonial period. Because the original artifacts are inaccessible, teaching is done through pictures."* (Interview/Elementary School Teacher)

By including content from other cultures in learning, teachers introduce Indonesian kingdoms and heritage through books and visualize various forms of cultural heritage through digital learning. Teachers also provide opportunities for students to learn about the culture in their surroundings or from their experiences when the subject relates to real life. For example, in chapter 5 of the IPAS subject, which discusses "Stories About My Region," teachers, with students' diverse cultural backgrounds, foster positive communication and interaction so that students feel recognized for their cultural identity. In this material, students can share their cultural experiences in their regions, and teachers can also provide an understanding that the tradition of selamatan, or thanksgiving, ceremonies before and after planting rice is a local custom. During the lesson, teachers provide motivation, appreciation, praise, and reinforcement before and after to ensure students feel valued, especially those from different cultural backgrounds.

The second aspect is **facilitating knowledge construction**, which relates to building students' knowledge in cultural aspects, including existing cultural values and cultures applied in school programs, such as "Junsa Berkakter" (characteristic junsa), which teaches the 5S habits (Smile, Greet, Respect, Greetings, and Politeness) and the "Kamis Budaya" (Culture Thursday) program, where these activities are not only carried out by students but also implemented by all school staff by wearing traditional or regional clothing according to their respective ethnicities, which is held every Thursday. This program is designed to foster noble character and high social awareness in students. Through these programs, teachers can develop students' knowledge by leveraging the cultural diversity around them.

The above documentation illustrates the school's commitment to strengthening cultural integration. In addition to its flagship programs, the school has teachers responsive to culture by setting positive examples of good attitudes and behavior.

*"In real life, I set a direct example for children, especially from the surrounding culture. As teachers, we must also be role models, for instance, in being polite, smiling, greeting, and saying hello. If a child behaves in an impolite manner, we immediately educate them by asking, 'Is that polite?' The goal is for them to continue learning cultural values and grow into culturally aware children."* (Interview/Elementary School Teacher)

In addition, based on observations, to help students think critically and openly during learning, teachers ask students to review previous IPAS lessons before introducing new material and form small groups so students can introduce and learn about cultural diversity from different perspectives. Teachers also connect concrete real-life examples using educational videos, for example, in material on cultural heritage, such as temples, mosques, batik, etc. Through this, the teacher explains the philosophy and meaning of simple patterns/motifs through the batik clothes that students usually wear on Thursdays.



Figure 1. Culture-based school

The 5s habit is one concrete example that aligns with the third aspect, **prejudice reduction**, which emphasizes the importance of building positive relationships between teachers and students. This aligns with the observation results, which show that teachers consistently greet students and ask about their well-being before starting lessons or upon entering the school environment, using either the local language or Indonesian. Positive relationships between students from different cultural backgrounds are fostered through teachers' role in managing a varied classroom layout and forming heterogeneous groups that include students with special needs, thereby fostering a culture of tolerance. Positive interactions between students are also evident when one of the groups gives a presentation in front of the class; they respect their friends who are speaking, share opinions, and listen to the group's presentation. This is also supported by the school's socialization, which fosters positive interactions among students and creates a comfortable learning environment despite their differences. SDN Junrejo 1 Batu also facilitates a comfortable learning environment by creating a reading terrace, a reading corner in the classroom, and displaying trophies of student creativity in the classroom as a source of motivation for learning, as shown in the following Figure 2.



Figure 2. A comfortable learning environment

The fourth aspect, **Social Justice**, emphasizes the ability of fourth-grade teachers at SDN Junrejo 1 Batu to act as agents of change. Teachers act as facilitators, especially in IPAS learning. Teachers successfully encourage student involvement and active participation through varied, student-centered learning strategies tailored to their needs. For example, in IPAS learning, the teacher divided the class into small groups in a unique way, namely by having them hug each other, surround the classroom, and sing a children's song called "Aku mau tamasya" (I want to go on a trip), the lyrics of which were modified to be simple and educational. When the teacher stopped singing and mentioned a clue in the song's last line, the students eagerly searched for their group members using the clue. Another form of change agent teachers implement is guiding students to influence themselves and others positively and to form a superior, potential generation. This is reflected in the teachers' attitude in providing guidance and appreciation for student development, especially for those who experience learning difficulties, as conveyed by the fourth-grade teacher:

*"In my class, there was one student who initially could not read and often cried. I always guided him and praised him when he showed progress, saying things like, "Great, you are so smart!" Eventually, he became more confident. Then his mother called me in tears, thanking me because her son could now read." (Interview/Elementary School Teacher)*

Based on the interview results, it was also noted that teachers serve as good role models, exemplifying positive attitudes toward diversity and educating students in line with the times. In addition to fostering understanding, teachers hone students' creativity in situations where they hold different views based on their experiences, which yields new insights for both teachers and students. In this case, teachers are allowed to be agents of change in implementing the CRT approach, namely by introducing the rich culture of Indonesia through school programs and activities, and through learning media that foster, preserve, and strengthen cultural identity. Teachers also explain the challenges they face, ranging from the advancement of civilization that has led to technological progress, resulting in Indonesian cultural material being combined with foreign cultures, to the fact that students' understanding has become broader and requires boundaries to filter it, and the need for parental support in supervising students' use of gadgets.

The fifth aspect, **Academic development**, refers to teachers' efforts to improve students' academic success by providing equal learning opportunities. The main focus is on applying student-centered learning models, such as Project-Based Learning (PjBL) and Problem-Based Learning (PBL), which are designed to meet students' needs and reflect their cultural

experiences. Teachers provide space for students to express their opinions, share experiences, and listen to their stories as material for learning reflection. Clear instructions are also given regarding individual and group assessments, so that students feel motivated to participate actively and can achieve academic success.

The interview results show that the application of project-based learning can better address students' learning needs, starting with students being more active and enthusiastic when working together in groups with diverse cultural backgrounds. Each member is responsible for their assigned role during the process, while other groups participate as listeners, critics, or input providers. This is reinforced by the teacher's explanation of the steps taken to provide equal opportunities for all students:

*"Of course, all students have the same opportunity to express their opinions and share without discrimination. Learning uses the project-based learning (PjBL) model, so students are more active and collaborative, with projects such as creative clippings and dioramas tailored to the material and created in interesting ways. (Interview/Fourth-grade teacher). "In addition to being more active, if children learn through practice or activities, they will find it easier to understand and find the answers themselves from what they have done." (Interview/Fourth-grade teacher).*



Figure 3. Diorama and creative clipping project

The Figure 3 above provides concrete evidence that the project-based learning (PjBL) method reflects the connection between science and technology education and Indonesia's cultural diversity. Through images and real-life examples in the school's music room, students learn about traditional foods, dances, and regional musical instruments. Students can also play or practice regional musical instruments facilitated by the school. The school also supports students in extracurricular activities aligned with their interests and talents, including dance clubs. Students can learn traditional dances rooted in the region's cultural background. The student stated:

*"I enjoy learning science and understand when the teacher tells stories from examples around me, and learn to recognize cultural differences through project assignments to create dioramas." (Interview/4th-grade student)*

As a result, students enjoyed learning through real-life examples, projects, and hands-on activities. Another real-life example based on observation results: teachers used reflections or

concept maps before and after lessons to assess students' deeper understanding of ecosystems after connecting with the local agricultural culture. In addition, after IPAS learning, students showed increased reflection, demonstrating their understanding of how traditional agricultural practices affect local ecosystems. The concept maps they created before and after the lesson showed a richer relationship between ecosystem elements and cultural practices, demonstrating the effectiveness of culture-based integrated learning. Interviews with teachers and students also showed that students felt happy and found it easier to understand IPAS lessons when the material taught was related to their daily activities.

#### 4. Discussion

The findings from this study regarding the integration of local culture through the Culturally Responsive Teaching (CRT) approach in IPAS learning in grade IV at SDN Junrejo 1 Batu indicate that the implementation of the CRT approach was effective and produced various positive impacts. This success is evident through the interconnectedness established between educational practices and the local cultural context, in addressing the diverse needs of students, and fostering a safe, transparent, and inclusive academic environment. The integration of the CRT approach into IPAS learning is crucial, as it reflects an Education that not only delivers content but also instills local cultural values in students. This emphasizes the importance of assessing and incorporating students' cultural backgrounds into the education process (Azizan Nashran et al., 2024; Purnamasari et al., 2023).

Content integration refers to teachers' efforts to incorporate diverse cultural elements into teaching materials, especially those not generally included in the official curriculum (Sharif Matthews & López, 2019). Fourth-grade teachers at SDN Junrejo 1 Batu were able to combine IPAS lesson materials with history, traditions, language, and cultural experiences relevant to students. In this aspect, the teacher successfully linked IPAS material with local culture; for example, material on Islamic and Hindu-Buddhist kingdoms was connected to concrete examples of royal relics in the local environment and across various provinces, using videos or images to build knowledge based on students' experiences, and connecting the lives of the surrounding community. In this regard, the implications include increased understanding and the formation of strong cultural awareness and local identity. Teachers become mediators who balance the national curriculum with regional cultural contexts, an important skill, especially in schools with ethnic diversity such as SDN Junrejo 1 Batu (Javanese, Balinese, and Madurese). Culturally oriented and relevant learning increases student participation and understanding, as they feel that the material presented is relevant and can be found in their daily lives (Payne, 2019; Woodroffe et al., 2025). This strategy can present culture as both an object of study and as a learning context that deepens students' understanding (Zufriady et al., 2025). According to Yildiz (2020), this strengthens scaffolding in learning and enhances knowledge transfer, as students can connect new concepts to their personal experiences. However, teachers also face challenges in finding teaching resources that deeply reflect local culture, as most textbooks still focus on national culture. To overcome this, teachers innovate by creating educational videos, cultural clips, and project-based media that are adapted from students' experiences. This shows that teachers' pedagogical competence and creativity are important factors in successfully implementing CRT.

Facilitating knowledge construction, focusing on how students can actively build their understanding through their personal experiences and cultural backgrounds. The fourth-grade teacher at SDN Junrejo 1 Batu employs a facilitative approach to learning, helping students

connect new information with what they already know. Teachers guide students through various methods to help them not only absorb information but also construct meaning and develop a deeper, more critical understanding of the subject matter. Teachers who are multicultural, positive, and able to take a good perspective are more effective in implementing Culturally Responsive Teaching (Abacioglu et al., 2020). The implications of this aspect are evident in culture-based school activities such as wearing traditional clothing and practicing the 5S culture every Thursday. This strengthens students' character within the social life of the Batu community, which is known for upholding the values of politeness and harmony. Learning that tangibly utilizes cultural activities also enriches students' critical thinking skills regarding the diversity around them. In this context, the success of this aspect is inseparable from schools' active facilitation of cultural activities such as "Culture Thursday" and "Junsu Berkarakter" as spaces that bring local values to life. The challenge is that teachers sometimes face disagreement among students during group discussions about cultural differences. For example, when interpreting the meaning of traditional ceremonies, some students associate them with different beliefs. Teachers overcome this by adopting a reflective approach, encouraging students to listen to one another, and emphasizing the value of tolerance, ensuring activities remain conducive.

**Prejudice reduction:** This aspect focuses on students' racial attitudes and how these attitudes can be changed through educational guidelines and curriculum materials, such as lessons and activities that help students develop positive attitudes toward various racial, ethnic, and cultural groups. A. Hernandez & Burrows (2021) state that this section contributes to reducing prejudice by creating a classroom environment that values diversity and emphasizes learning that applies multicultural values. This is realized through the practices of fourth-grade teachers in IPAS learning, which encourages the use of local languages and forms mixed groups with students with special needs. The school's commitment to creating a supportive environment through activities and implementing the 5S culture has proven beneficial in instilling character and shaping positive attitudes. This is reinforced by creating a comfortable learning environment, such as a reading corner, and by students' work in class, which can support the internalization of fairness and respect for differences. However, teachers must maintain good relations among students so that the use of regional languages does not create exclusivity among ethnic groups. Teachers must actively encourage students from diverse backgrounds to introduce one another to their regional customs within a multicultural local context. Another challenge is maintaining a balance between regional languages and Indonesian so that all students feel equal. The integration of multicultural perspectives with intergroup interactions has proven effective in reducing prejudicial attitudes in the classroom (Camicia, 2007), thereby fostering tolerance and mutual respect (Ayu & Dirgantoro, 2023).

**Social justice in education,** it is a principle that emphasizes that every student, regardless of their background, has the right to equal access to meaningful, inclusive, and humane education (Weuffen et al., 2023). Additionally, it provides equal opportunities, understands, and values the differences each child possesses, regardless of culture, gender, ability, or social status. This is evidenced by teachers' roles as agents of change, ensuring that every student has equal learning opportunities through collaborative methods and project-based learning that provide space for all students to participate actively without discrimination. Teachers also show empathy, especially to students who experience learning difficulties, by providing personal guidance and encouragement. In this context, it has been proven to support the principle of social Justice, which helps create equal access to learning, and, through singing together in group formation and collaborative projects, will strengthen a sense of togetherness and

leadership among students. However, during implementation, teachers face challenges related to differences in academic abilities, which require them to adjust their teaching to ensure that all students remain actively involved in the learning process.

Fair education emphasizes the urgency of instilling empathy, compassion, and ethical responsibility as foundational values from an early age (G.. A socially, racially, and environmentally just curriculum is designed to encourage critical thinking, awareness, and concern for social and environmental issues, including rejecting all forms of racial discrimination (Gandolfi & Mills, 2023). This is demonstrated through classroom practices such as peer advocacy, in which some students stand up to support peers who face discrimination or injustice. The emphasis on group collaboration involving diverse backgrounds also trains students to respect and empathize with differences. The implementation of teachers as agents of change provides guidance tailored to students' backgrounds and needs, thereby fostering positive Influence on both themselves and others.

Academic development serves as a critical cornerstone in enabling students to reach their highest academic potential by delivering learning experiences that resonate with their cultural and life contexts, irrespective of their racial, cultural, or linguistic backgrounds. According to Hammond (2014), in *Culturally Responsive Teaching and the Brain*, fostering a sense of safety and an appreciation for creativity in the classroom can significantly enhance students' cognitive development. At SDN Junrejo 1 Batu, teachers integrate culture into science and mathematics learning materials. For example, when teaching about natural resources and ecosystems, teachers connect the material to local agricultural and livestock culture and to archipelago culture through royal relics found in several cities or through field trips that explore the history of these relics.

Reflection through concept maps created before and after learning shows that students' understanding of the relationship between ecosystems and local cultural practices increased. Using project-based learning can reflect students' learning needs. This approach positively impacts students' confidence and learning outcomes, demonstrating the effectiveness of integrated culture-based learning. This aligns with research by Gay (2018), which found that culture-based learning enhances participation and understanding because students perceive the material taught as relevant to their daily lives. This is reinforced by several studies showing that PjBL (project-based learning) can improve critical thinking skills in science literacy and problem solving, which are important competencies for success in 21st-century education (Ambarwati et al., 2025; Paudel, 2024). At SDN Junrejo 1 Batu, students participate in cultural activities that deepen their appreciation of Indonesia's rich cultural diversity and strengthen their connections to cultural heritage and friends from different cultural backgrounds. This aligns with the findings of Noor et al. (2025), who highlight that culturally responsive teacher-student interactions can improve emotional well-being and strengthen social bonds in the classroom. Teachers consistently provide encouragement and recognition for student progress, helping them feel valued and motivated to engage more deeply in learning. These classroom practices reflect the principles of (2000) Expectancy-Value Theory, which suggests that students are more motivated when their efforts are recognized and valued.

In this context, teachers have been shown to encourage students to understand culture and its relationship to subject matter. Integrating culture into IPAS learning encourages students to think more critically about their surroundings, such as how traditional agricultural practices affect the ecosystem. This enriches their understanding of IPAS and builds ecological awareness rooted in local culture. However, teachers have limited time and facilities to develop contextual learning media. Nevertheless, schools support by providing regional musical

instruments such as gamelan and regular cultural activities help teachers maintain the relevance between IPAS learning and students' cultural context.

## 5. Conclusion and Implications

The implementation of Culturally Responsive Teaching (CRT) highlights the critical role of honoring and incorporating students' cultural backgrounds within the learning process. This research demonstrates that embedding local culture into elementary education fosters a capable, promising generation, particularly in navigating cultural diversity and encouraging students to recognize, respect, and preserve their heritage. By integrating local cultural elements into IPAS learning, students gain a richer understanding of both scientific and social concepts while developing a stronger relationship with their cultural heritage.

This study, centered on Grade IV at SDN Junrejo 1 Batu, investigates the application of Culturally Responsive Teaching (CRT) by integrating local culture into IPAS materials. The results indicate that teachers actively embed cultural elements across five core dimensions: content integration, facilitating knowledge construction, prejudice reduction, social Justice, and academic development. These practices highlight the necessity of preparing educators to implement culturally responsive learning not just as a pedagogical method, but as a way to humanize education, ensuring that each student feels acknowledged, valued, and supported in their intellectual and social growth.

This study demonstrates that CRT can be effectively applied in IPAS learning, particularly in Indonesia's diverse local cultures. Applying CRT steps in accordance with the aspects mentioned by Hernandez can make IPAS teaching more contextual, inclusive, and impactful and equip students to develop academically and socially in a multicultural educational environment. This approach reinforces and enriches the theory that learning becomes more meaningful when it aligns with students' life experiences.

The implications of this study indicate that applying the CRT approach in IPAS learning encourages teachers to understand better, appreciate, and integrate students' cultures into the teaching and learning process. This requires workshops on developing IPAS teaching materials based on local wisdom and on training teachers to manage heterogeneous classes.

## 6. Limitation

This study is still limited by its sample size, and it has not yet quantitatively measured the impact of implementing the Culturally Responsive Teaching approach on significant learning outcomes, so its effectiveness remains descriptive. Recommendations for further research could adopt quantitative or mixed-methods approaches to examine diversity in CRT implementation and assess its long-term impact, testing broader approaches both geographically and across educational levels.

### Credit authorship contribution statement

**First Author:** Conceptualizing implementation of the Culturally Responsive Teaching approach, collecting and analyzing data, and writing the manuscript. **Second Authors:** Research validity, data analysis, discussion, results, and manuscript finishing.

### Declaration of competing interest

We declare that we have no competing interests.

### Ethical Declaration

This study was conducted with prior approval from the school principal and the consent of the participating teachers and students.

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