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How to Integrate Culturally Responsive Teaching Approach in Project Based Learning Model in Elementary Schools?

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Abstract
This study aims to describe the application of the culturally responsive teaching (CRT) approach integrated into the project based learning (PjBL) model in elementary schools. This study is a qualitative study with a case study type. Data collection techniques were carried out through interviews and document analysis through focus group discussions attended by 15 elementary school teachers in Malang City, East Java. Content analysis was applied in this study to obtain a design for integrating CRT into PjBL in elementary schools applied in Natural and Social Sciences (IPAS) learning. Integration of CRT into PjBL builds more meaningful and relevant student engagement with their cultural background. CRT integrated into the PjBL model not only encourages students to think critically through projects to create products such as infographics, but also allows them to connect scientific concepts with their cultural context and social environment such as surrounding traditions as an effort to protect the environment. Recommendations for the design of a PjBL model integrated with CRT require careful planning to ensure that each stage of learning is not only centered on the project, but also considers the cultural diversity of students.

1. Introduction

Closing the gap to achieve academic achievement for students from various cultural backgrounds can be done by appreciating and utilizing their cultural richness as an asset in the learning process. Culturally relevant education is able to overcome the challenges of differences in students' social and cultural backgrounds which often impact the gap in academic achievement (Dwiputra & Sundawa, 2023; Ladson-Billings, 2021; Khalifa, 2020). Therefore, teachers' understanding in integrating Culturally Responsive Teaching (CRT) into various learning models in elementary schools is very necessary in order to create inclusive learning for every student. Through this approach, teachers act as facilitators and cultural mediators who help students relate the concepts they learn to their life experiences and cultural values (Liao & Li, 2023; Suri & Chandra, 2021).

CRT as an approach focuses on recognizing and utilizing students' cultural diversity as a bridge in learning (Wilcoxen et al., 2022; Tanase, 2020). This approach emphasizes the importance of teachers understanding students' cultural backgrounds, values, and experiences, and integrating them into the curriculum and learning strategies. CRT creates an inclusive learning environment so that all students feel recognized, valued, and actively involved (Banwo et al., 2022; Page et al., 2022). The application of cultural learning in elementary schools is very important to support students in forming their self-identity and understanding of the world around them (Ahmed, 2022; Kayser et al., 2020). Culturally relevant education strengthens students' identity and self-confidence, encourages their engagement, and reduces the gap in academic achievement through more contextual and meaningful learning.

The integration of CRT into one of the learning models, Project-Based Learning (PjBL), is considered effective in promoting learning outcomes in elementary schools. This is because this approach provides a culturally relevant context in a collaborative project-based learning process (Krajcik et al., 2022; Miller et al., 2021). Through the integration of CRT into PjBL, teachers can direct students to design projects that reflect students' values, traditions, and cultural experiences, so that learning becomes more meaningful. This approach allows students to connect the theories and concepts learned in class with the realities of their lives (Abacioglu et al., 2020; Khalifa, 2020). PjBL

that is designed in a culturally responsive manner can enrich collaboration between students from different backgrounds, encourage mutual respect, and foster social and emotional skills. Thus, CRT and PjBL can form an inclusive and productive learning environment in achieving higher academics and holistic character development in individual students.

The integration of CRT into the PjBL model is very relevant in learning IPAS (Natural and Social Sciences) as in the context of the Independent Curriculum. Through IPAS learning, CRT helps students understand scientific and social concepts through perspectives that are closer to their daily lives, such as exploring the surrounding environment, local cultural values, and relevant social issues. The combination of cultural elements in collaborative-based projects can make it easier for students to develop critical thinking and problem-solving skills contextually (Mursid, 2023; Vasiliene-Vasiliauskiene et al., 2020). This is in line with the Independent Curriculum which emphasizes independence, relevance, and diversity in learning, and prepares students to become adaptive and responsive learners to changes around them (Prahastina w tal., 2024; Dian et al., 2023).

The CRT approach is very important in improving learning outcomes and engagement of students from various cultural backgrounds. In this regard, a clear understanding is needed on how to integrate CRT effectively. It is important for teachers to understand specific techniques, such as connecting project materials to local issues or using collaborative methods that value students' cultural contributions. Thus, science learning is not only a place to develop academic knowledge, but also the formation of students' social and cultural identities, in accordance with the objectives of the Independent Curriculum which values diversity and personalization in the learning process. This article discusses how to integrate the CRT approach into the PjBL model in elementary schools.

2. Method

This study uses a descriptive qualitative method that aims to describe and understand how to integrate the CRT approach with the PjBL model in science learning in elementary schools. The focus of the study is on exploring teachers' perspectives and experiences in implementing CRT in PjBL, especially in the context of science learning that combines natural and social sciences in accordance with the Merdeka Curriculum. Data collection was carried out using in-depth interview techniques through Focus Group Discussions (FGD) with 15 elementary school teachers who have more than 3 years of teaching experience. This interview aims to explore the views and practices of teachers regarding the integration of CRT in the PjBL process. Through FGD, teachers discussed strategies for integrating the CRT approach into the project-based learning process, especially in the context of science learning in elementary schools. This FGD provides an opportunity for teachers to share good practices, provide input to each other, and reflect on the approaches they use.

The credibility of research data uses technical triangulation. This study tests the credibility of the data through the use of more than one data collection technique, consisting of interviews and document reviews such as elementary school science learning devices. The collected research data was analyzed using content analysis. Content analysis was conducted by identifying patterns, themes, and meanings from the data obtained through interviews. Some of the themes identified include cultural relevance in project materials, collaborative approaches involving students from cultural backgrounds, and challenges faced by teachers in implementing CRT. The results of the analysis provide practical insights into effective ways to integrate the CRT approach into PjBL in science learning in elementary schools.

3. Results and Discussion

Based on the results of teacher interviews through FGD, perceptions were obtained regarding the way teachers integrate the CRT approach with the PjBL model in elementary school science learning. The development of the PjBL model with the integration of the CRT approach is exemplified through the diagram in Figure 1. An example of integration is carried out in Phase C. In Phase C, students are introduced to a system of interconnected elements that work with certain rules to carry out certain functions, especially those related to how nature and social life are interrelated in the context of diversity. The Learning Outcomes (CP) that are examples of integration targets are investigating the dependence between biotic and abiotic components that can affect the ecosystem in the surrounding environment.

Figure 1. Design of CRT Approach Integration in PjBL Model

The design of CRT integration with the PjBL model in elementary school science learning in this study is exemplified in the ecosystem material and how to maintain components in the ecosystem. The stages of integration are as follows.

First step is determination of basic questions. The basic questions in the ecosystem material and how to maintain components in the ecosystem are adjusted to the reality of the students' living environment. Teachers can ask questions such as: “What can you see around your house? What is the role of plants in the environment?” After that, the teacher follows up with questions such as “How do we care for plants in our environment? How can the surrounding culture protect the environment?”. These questions connect scientific concepts with students’ experiences in everyday life. These initial questions can stimulate students to remember what their community’s cultures do in relation to protecting the environment.

Project planning stage emphasizes on students form small groups of 3-5 people. One of them acts as the leader with the teacher’s assistance in preparing a project plan for making infographics for a wall magazine about protecting the environment. Each group prepares a project plan and divides the tasks for each member. They collaboratively prepare the stages of making infographics and discuss ways in which the surrounding community protects the environment. The creation of infographics is done collaboratively with a clear division of labor. The division of labor includes designing infographics, collecting materials and equipment, summarizing community culture in an effort to protect the environment, and presenting artistic infographics. These stages are considered appropriate by the teacher so that students can understand the meaning of collaboration towards the same goal. In the process, students also understand the meaning of the environment for living things and understand the various efforts to protect the environment.

Creating product stage emphasizes on students develop products from drafts into infographics that are ready to be displayed, for example by collecting documentation of surrounding cultures in protecting the environment. Such as the Keduk Beji tradition in Sendang Beji, Dero Village, Ngawi Regency, East Java. This tradition is the center of attention with the melodious strains of Javanese gamelan, villagers work together to clean the spring from dirt and leaves. This ritual is not just a tradition, but a real effort to maintain the sustainability of water sources that are the lifeblood of the Dero community. Sendang Beji is not only a source of water for irrigating rice fields, but also drinking water for the community which is managed by the Drinking Water Management Association (HIPPAM). The spirit of mutual cooperation and concern for the environment is clearly reflected in every movement of residents in maintaining the sustainability of this water source (Suparno, 2024). This integration helps students understand that science does not stand alone, but is closely related to their social and cultural context.

Step presentation and publication of results provides students with the opportunity to present their project results, teachers can provide space for students to display their experimental results in a way that reflects their cultural background. For example, students can present in the form of a village cleaning tradition from their environment. Teachers can invite students to share stories about how the tradition is carried out and what impacts it has on the surrounding community. In this way, students will feel more appreciated and motivated in their learning. In the reflection stage, students are invited to reflect on what they have learned, both in terms of the concept of protecting the environment. Teachers can ask students to reflect on how their cultural backgrounds help them understand this concept. Teachers can also provide feedback that takes into account student diversity, appreciating the cultural contributions they bring to the project. Evaluation can also include discussions about how a culture-based approach can be applied to other scientific experiments in the future, so that students continue to develop a deeper and more contextual understanding.

The integration of culture in this project-based learning provides space for students to understand the role of culture in their lives. Traditions born from society have a noble purpose for togetherness and survival. In addition, in the process, students also understand the concepts of

ecosystems and what efforts can be made to protect the ecosystem. This design is in accordance with previous research that reveals how the role of culture can create an inclusive learning environment and encourage the achievement of student learning outcomes, both cognitively, affectively, and psychomotorically (O'Leary et al., 2020; Abacioglu wt al., 2022; Alam & Mohanty, 2023).

3.1. Conclusion

The integration of CRT with the PjBL Model in science learning allows students to connect scientific concepts with their cultural backgrounds, giving them the opportunity to learn actively and contextually. This design promotes mutual respect between students from various backgrounds, as well as encouraging active involvement in a collaborative and inclusive learning process in accordance with the principles of the Independent Curriculum. This study recommends that teachers be able to adjust learning based on the needs and cultural backgrounds of students so that the integration of CRT with the PjBL model can play an effective role in achieving learning outcomes, both cognitive, affective, and psychomotor.

Author Contributions

Ahmad Syawaludin: Conceptualization, methodology, analysis, supervision. Alvin Andriyanto: Data collection, writing-draft preparation. Anggareza Maulana: Visualization, investigation. Ike Amanda Febriana: Writing, analysis. Luluk Fajriyah: Analysis, validation. Salsa Nur Fadilla: Writing - reviewing and editing. All authors have equal contributions to the paper. All the authors have read and approved the final manuscript.

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References

Abacioglu, C. S., Volman, M., & Fischer, A. H. (2020). Teachers' multicultural attitudes and perspective taking abilities as factors in culturally responsive teaching. *British journal of educational psychology, 90*(3), 736-752.

Ahmed, T. (2022). *An Investigation of the Relationship Between Teachers' Personal Epistemologies and Their Self-Efficacy About Culturally Responsive Classroom Management* (Doctoral dissertation, East Tennessee State University).

Alam, A., & Mohanty, A. (2023). Cultural beliefs and equity in educational institutions: exploring the social and philosophical notions of ability groupings in teaching and learning of mathematics. *International Journal of Adolescence and Youth, 28*(1), 2270662.

Banwo, B. O., Khalifa, M., & Seashore Louis, K. (2022). Exploring trust: culturally responsive and positive school leadership. *Journal of Educational Administration, 60*(3), 323-339.

Dian, D., Ahmad, C. F., & Arsal, F. R. (2023). Implication and application MBKM's curriculum in education (Madrasah And Universities). *At-Ta'dib, 18*(1), 106-122.

Dwiputra, D. F. K., & Sundawa, D. (2023). Analysis of Potentials and Challenges of Culture-based Learning in Indonesia: A Systematic Literature Review. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran, 9*(1), 213-223.

Kayser, A. A., Nash, A. M., & Kayser, B. (2020). Change-makers: A grassroots approach to culturally responsive leadership and teaching. *Journal of Education Human Resources, 38*(1), 35-56.

Khalifa, M. (2020). *Culturally responsive school leadership.* Harvard Education Press.

Krajcik, J. S., Miller, E. C., & Chen, I. C. (2022). Using project-based learning to leverage culturally relevant pedagogy for science sensemaking in urban elementary classrooms. *In International handbook of research on multicultural science education (pp. 913-932).* Cham: Springer International Publishing.

Ladson-Billings, G. (2021). *Culturally relevant pedagogy: Asking a different question.* Teachers College Press.

Liao, H., & Li, L. (2023). Facilitating EFL learners' intercultural competence through culturally responsive teaching in oral English classrooms. *System, 115*, 103070.

Miller, E. C., Severance, S., & Krajcik, J. (2021). Motivating teaching, sustaining change in practice: Design principles for teacher learning in project-based learning contexts. *Journal of Science Teacher Education, 32*(7), 757-779.

Mursid, R. (2023). Collaboration-Based Development Model E-Learning on Course Learning Achievements Working Skills. *International Journal of Instruction, 16*(2).

O'Leary, E. S., Shapiro, C., Toma, S., Sayson, H. W., Levis-Fitzgerald, M., Johnson, T., & Sork, V. L. (2020). Creating inclusive classrooms by engaging STEM faculty in culturally responsive teaching workshops. *International Journal of STEM education, 7,* 1-15.

Page, A., Mavropoulou, S., & Harrington, I. (2022). Culturally responsive inclusive education: The value of the local context. *International Journal of Disability, Development and Education, 69*(4), 1313-1326.

Prahastina, L., Indriayu, M., & Matsuri, M. (2024). Exploring the effectiveness of the Merdeka curriculum in promoting effective learning practices. *JPPI (Jurnal Penelitian Pendidikan Indonesia), 10*(3), 111-121.

Suparno. (2024). *Menelusuri Makna Tradisi Bersih Desa Dero: Syukur, Leluhur, Budaya, dan Masa Depan.* Online. Retrieved from: https://dero.desa.id/artikel/2024/7/23/menelusuri-makna-tradisi-bersih-desa-dero-syukur-leluhur-budaya-dan-masa-depan

Suri, D., & Chandra, D. (2021). Teacher's strategy for implementing multiculturalism education based on local cultural values and character building for early childhood education. *Journal of Ethnic and Cultural Studies, 8*(4), 271-285.

Tanase, M. (2020). Is good teaching culturally responsive?. *Journal of Pedagogical Research, 4*(3), 187-202.

Vasiliene-Vasiliauskiene, V., Vasiliauskas, A. V., & Sabaityte, J. (2020). Peculiarities of educational challenges implementing project-based learning. *World Journal on Educational Technology: Current Issues, 12*(2), 136-149.

Wilcoxen, C. L., Steiner, A. L., & Bell, J. (2022). Strengthening preservice teachers' understanding of culturally responsive classrooms through exposure, immersion, and dialogue. *Journal of Community Engagement and Scholarship, 14*(1).