Jurnal Teori dan Praksis Pembelajaran IPS, Volume 9, No 2, 2024, Page 114-130
http://dx.doi.org/10.17977/um022v9i22024p114
P-ISSN: 2503-1201; E-ISSN: 2503-5347

Implementation of the RADEC (Read, Answer, Discuss, Explain, Create) model integrated culturally responsive teaching to improve students's 4C skills

Ina Sukmawati*
Universitas Negeri Surabaya, Indonesia
Jl. Lidah Wetan, Surabaya, 60213
inasukma07@gmail.com

Ali Imron
Universitas Negeri Surabaya, Indonesia
Jl. Lidah Wetan, Surabaya, 60213
aliimron@unesa.ac.id

Soesanti
SMP Negeri 3 Surabaya, Indonesia
Jl. Praban No.3, Surabaya, 60275
susantiudin@gmail.com

* Corresponding Author

Abstract
This study addresses the low levels of 4C skills (critical thinking, creativity, communication, collaboration) among students, which adversely affects their thinking processes and soft skills, failing to meet 21st-century educational competency standards. Effective interventions are needed to enhance these skills so students can thrive in a complex global environment. This research evaluates the effectiveness of the RADEC model (read, answer, discuss, explain, create) when integrated with Culturally Responsive Teaching (CRT) to improve 4C skills in students. The RADEC model incorporates activities relevant to students' cultural backgrounds, such as reading materials using tradition content, answering questions, collaborating in discussions, and creating products. The study conducted in class VIII-E of SMP Negeri 3 Surabaya using the Classroom Action Research (CAR) method over two cycles, found a significant increase in 4C skills. The average score rose from 58.86 (fair category) in the first cycle to 78.08 (good category) in the second cycle. Success factors include providing infographic reading materials containing local tradition content that aligns with the student's cultural background, forming class agreements to strengthen learning dynamics, and increasing student involvement in each stage of the RADEC model. Thus, the RADEC model integrated with the CRT approach proved effective in improving 4C students, thereby supporting the achievement of 21st-century educational competencies.

Keywords: *4C skills; RADEC; culturally responsive teaching.*

Received: 16-09-2024; Accepted: 13-10-2024; Published: 31-10-2024.

Implementation of the RADEC (Read, Answer, Discuss, Explain, Create) model integrated culturally responsive teaching to improve student's 4C skills

INTRODUCTION

The demands of 21st-century education in Indonesia have provided many major transformations in the world of learning. Starting from a paradigm shift-based learning approach teacher-centered to a strategy that actively involves student-centered as an effort to create a learning process that takes sides and empowers students' potential and learning needs (Muliarta, 2018). In the Indonesian context, the independent curriculum is presented as an effort to improve the quality of learning in the form of a curriculum that meets the demands of today's 21st-century education. Students need to have 21st-century skills that can equip them to become future workers. The Merdeka Curriculum is presented as a solution to help students face the intense competition for human resources at the global level in the 21st century (Indarta et al., 2022). Skills way of working often referred to as 4C covers critical thinking, creativity, communication, and collaboration (Anwar & Umam, 2023). These skills are included in aspects of learning and innovation skills in the 21st Century Learning Framework developed by Partnership for 21st Century Learning (P21). 4C skills can help students gain in-depth knowledge and strong understanding so that they can become lifelong learners (Panggabean et al., 2021). In the 21st century, learning focuses on the role of students as the core of the learning process. This is demonstrated by the focus on training students' metacognitive skills, information literacy, problem-solving, communication, creativity and innovation, collaboration skills, and critical thinking skills (Rahmawati & Salehudin, 2021).

The current curriculum is designed to meet global demands and promotes the 4Cs: literacy, character strengthening, and higher-order thinking skills (HOTS). Higher-order thinking skills are an important component of learning (Maulana et al., 2022). It is hoped that strengthening this section will help Indonesian students prepare themselves to compete at the global level, adapt to change, and survive in an increasingly complex world. Therefore, students are expected to not only master academic skills but also have the skills needed to adapt to the changes and challenges of the 21st century, one of which is 4C skills. However, the facts of the results Programme for International Student Assessment (PISA) Indonesia in 2022 announced the OECD that 70% of Indonesian students still have low literacy skills, as well as 72% of students' mathematics skills are still relatively low (Putrawangsa & Hasanah, 2022). PISA questions require a high level of cognitive thinking, creative thinking, and problem-solving. This data indicates that students' 4C is still relatively low. Real conditions resulting from observations in the social studies learning process in Grade VIII-E at SMP Negeri 3 Surabaya show that students still behave passively in class. Students tend not to be involved in activities that encourage active interaction, such as group discussions and question-and-answer sessions. Even though there is a two-way interaction between teachers and students, the intensity and quality of student participation are still insufficient to improve communication and collaboration skills. They are not used to sharing opinions, listening to friends, or working together to complete tasks. Students often interact outside the context of discussion during

group learning. Supported by the observations of other researchers, it was found that many students, during group learning activities, often play around with their group members or members of other groups, work individually without sharing ideas, and some group members simply wait for answers from their peers (Ambarwati et al., 2024). So, this hinders the development of their communication and collaboration skills.

Further observations during subsequent learning sessions revealed that creativity and critical thinking students need to be improved. During learning, students rarely ask deep and critical questions. For instance, students rarely ask questions that relate to the causes, impacts, and solutions for addressing a problem. This condition shows that they tend to receive information without exploring or questioning the concepts being taught. In addition, when facing complex problems, students have difficulty finding or creating creative solutions. This shows that the learning process only focuses on the transfer of knowledge. Supported statement by (Yanto et al., 2019) The impact can also be seen in the attitude shown to be unenthusiastic during the learning process in class. The reality that occurs demands that it is still necessary to develop the 4Cs possessed by students during the learning process in the classroom. So, a learning model is needed that can train students to have skills that are in line with the demands of 21st-century education.

The solution that can be used to improve students' 4C skills is the RADEC (read, answer, discuss, explain, create) learning model. This model was first introduced by Sopandi in an international seminar in Kuala Lumpur, Malaysia, as an effort to meet the demands of 21st-century learning and skills in Indonesia (Sopandi, 2019). This model has several advantages, namely having a systematic and easy-to-remember syntax at each stage. learning (Fitri et al., 2023). Vygotsky's philosophy of constructivism, which includes concepts of Zone of Proximal Development (ZPD), is the basis for the learning stages in the RADEC model. This syntax is in line with the learning process which emphasizes Knowledge Construction rather than just the Transfer of Knowledge (Kusumaningpuri & Fauziati, 2021). The RADEC model has been adapted to educational conditions in Indonesia, where students are required to understand many lessons in a short time focusing on material, which involves understanding concepts, and lessons that focus on practice, which involves creativity (Pratama et al., 2019) . Supported by previous research by Apriansah et al., (2024) It shows that the implementation of the RADEC model with a percentage of 87% has a positive influence on students' conceptual understanding and creativity skills. Other research also informed that the application of the RADEC model was also able to increase students' social studies learning outcomes in the first cycle with a percentage of 69% to 91% in the second cycle which was classified in the very high category (Chairunnisa et al., 2022). Based on previous research, the RADEC model is proven to be able to improve learning outcomes and 4C skills learners.

Apart from these benefits, the RADEC model can be integrated with Culturally Responsive Teaching (CRT) as an alternative solution. CRT principles ensure that learning is inclusive and relevant to students' cultural backgrounds, thereby enriching the RADEC process. Integrating

RADEC with Culturally Responsive Teaching greatly supports a more inclusive, engaging, and effective learning experience. This combination not only helps meet the demands of 21st-century education but also respects students' cultural identities, making learning more meaningful and impactful. Together, RADEC and CRT form a comprehensive approach to enhancing students' 4C skills, providing a strong foundation for the development of critical thinking, communication, collaboration, and creativity skills essential in today's increasingly connected world. This is supported by Fitriah et al., (2024) that the application of this approach can increase students' involvement and interest in the learning process, especially regarding material that relates to their cultural diversity. So, the solution that can be taken in this research is to integrate the CRT approach with the RADEC model in learning.

Based on the problems found and the results of previous research, this research aims to apply the RADEC model to improve students' 4C. Previous studies have primarily focused on the effectiveness of the RADEC model in improving 4C skills without considering students' cultural contexts as a factor that can strengthen their engagement and understanding. Additionally, there has been no prior attempt to integrate the RADEC model with a teaching approach that aligns with students' learning needs. Therefore, the novelty of this research lies in the integration of the RADEC model with Culturally Responsive Teaching (CRT), a framework that has not been widely explored in combination with RADEC, especially in social studies courses. Considering that social studies often involve social, cultural, and historical topics, the inclusion of CRT not only makes learning more relevant but also personalizes it to align with students' cultural backgrounds, fostering deeper engagement and understanding. This innovative collaboration aims to equip students with the 21st-century skills needed to succeed in diverse environments while also enhancing their sense of identity and community through culturally relevant examples. This approach, by actively incorporating cultural elements, aims to boost students' participation and motivation, thereby facilitating a more meaningful learning process. This approach is also consistent with the characteristics of the Merdeka Curriculum, which focuses on the holistic development of student's potential.

METHOD

Classroom Action Research developed by Kurt Lewin was chosen as the method in this research. Kurt Lewin explained that this process consists of four stages, namely planning, acting, observing, and reflecting. A visualization of each stage can be seen in the figure 1 below (Machali, 2022).

This research was carried out at SMP Negeri 3 Surabaya with the selected subjects, namely 32 students in class VIII-E. SMP Negeri 3 Surabaya was chosen as the research location based on several key factors related to experiences and observations during the pre-service teacher education program. The research process consists of two cycles, each cycle involving two meetings. At the planning stage, researchers prepared teaching modules using the RADEC

model with the development of 4C skills (creativity, communication, collaboration, critical thinking) integrated with local cultural contexts.

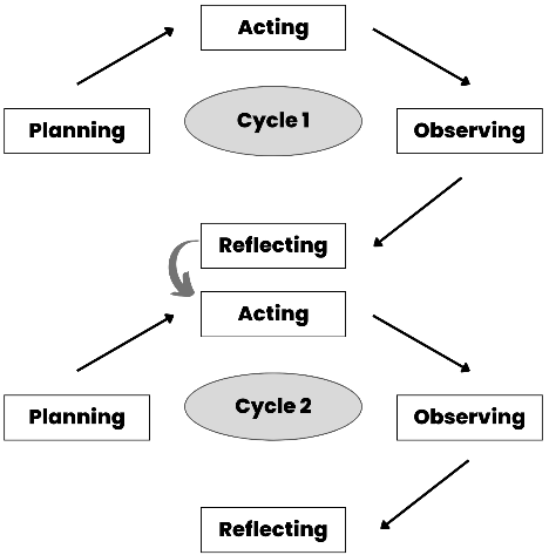

Figure 1. Kurt Lewin model classroom action research cycle (2007)

In the Read stage, students access real-world data such as tourism statistics and agricultural production, connecting learning to real-life situations. The Answer stage encourages critical thinking by posing questions related to the reading material. During the Discuss stage, students engage in discussions about local traditions like Sedekah Laut, Sedekah Bumi, and the Yadnya Kasada Ceremony, highlighting the use of Culturally Responsive Teaching in the learning process. In the Explain stage, they communicate their discussion results in groups, enhancing communication and collaboration skills. Finally, the Create stage fosters students' creativity by having them create mind maps or infographics based on the material they have studied assessment and observation instruments, and student worksheets. Apart from that, researchers also prepared 10 multiple choice questions for post-test activity to measure students' critical thinking skills scored on a scale of 0-100 points.

During the learning process, researchers made observations to evaluate students' 4C (creative thinking, communication, collaboration). For this reason, the researcher prepared an observation sheet instrument containing the aspects and indicators that were assessed. Critical thinking skills are measured using test techniques with aspects of analysis, interpretation, evaluation, and inference (Facione, 2015). Collaboration skills are measured using 5 questions with aspects responsibility, leadership and initiative, research innovation sharing, listening, questioning, discussion, also teamwork (Hamdu et al., 2020; Yujobo, 2015). Meanwhile, communication skills were measured using 5 questions with indicators including expressing opinions, ideas, and thoughts, oral communication, listening to others, responding to others, and written communication. Creative thinking skills are measured using aspects of fluency,

flexibility, originality, and elaboration (Adhiriyanthi et al., 2021). Measurement of creative thinking, communication, and collaboration skills uses an observation instrument with a 4-range scale. The scores for each indicator were then converted into a total percentage and evaluated using the value criteria adapted from (Isnaini et al., 2023). The assessment criteria can be seen in the following table:

Table 1. Value criteria 4C

Value Range	4C Criteria
85–100	Very Good
70–84	Good
55–69	Enough
50–54	Less
0–49	Very Less

Sources: Adaptation from (Isnaini et al., 2023)

The criteria listed in the table above are applied at the evaluation stage after each cycle to assess the results of the learning process that has been carried out. It is hoped that students will achieve results in the 70-84 range so that they can be categorized as good. If the results obtained are below this range, the researcher will reflect to identify obstacles, obstacles, and problems that arise during the learning process. These findings will then be used to make improvements in the next cycle.

RESULTS AND DISCUSSION

Result

Planning Stage

This classroom action research was carried out in class VIII-E with a total of 32 students, where students needed to be introduced to the culture around them during the learning process. So, this is a challenge faced by teachers in delivering curriculum content that does not only focus on academic aspects but is also culturally relevant. Recognizing the need to improve students' critical thinking, creativity, communication, and collaboration (4C) skills, this research integrates the RADEC learning model with the Culturally Responsive Teaching (CRT) Culturally Responsive Learning approach to connect students with meaningful cultural content. The theme chosen for this study was "Geographic Conditions and Natural Resource Conservation" a topic designed to help students understand how geographic factors shape the diversity of natural resources and cultural practices in their region. This theme was chosen because it allows students to see the relationship between environmental and cultural factors and fosters awareness of cultural heritage and sustainability. At the planning stage, researchers began by preparing learning plans and creating teaching modules adapted to the RADEC model. This model was chosen because it has structured stages Read, Answer, Discuss, Explain, and Create which guide students to engage progressively more deeply with the material. The content is presented in Student Worksheets (LKPD) which are adapted to this

model and focus on how geographical conditions influence customs and culture. For example, students explore the Bugis tribe's use of astronomy for maritime navigation and the Meratus Dayak tribe's agricultural practices related to lunar phases, thus integrating elements of a Culturally Responsive Learning approach. Apart from that, researchers also prepared post-test assessment instruments to evaluate critical thinking skills and observation tools to assess students' creative thinking, communication, and collaboration skills during the learning process. This research was carried out over 2 research cycles which can be described below.

Cycle 1

In the implementation phase, cycle 1 lasted for 2 meetings on Monday and Wednesday (23 and 24 July 2024) with 1 meeting allocated time of 80 minutes. Starting from the preliminary activities, the teacher begins to check the presence of students and carry out an apperception of lessons that have previously been studied, namely regarding geographical conditions affecting the diversity of natural resources. Then the teacher tries to connect the material that has been studied by asking trigger questions. After that, the teacher motivates the students. During the learning process using the RADEC model, the learning process begins with the Read stage, where students read material about the fishing traditions of the Bugis tribe and the agriculture of the Dayak Meratus community which is related to astronomy.

The Read stage is an implementation of the Culturally Responsive Teaching approach. Students are expected to understand how the Bugis tribe uses astronomical knowledge for sea navigation and how the Meratus Dayak people observe weather patterns and moon phases for agriculture. After that, in the Answer stage, students note important points from the reading, identifying key information related to the use of astronomy. At the Discuss stage, they were divided into groups to discuss the factors that influence society in using astronomy and its impact on everyday life. Next, in the Explain stage, each group presents the results of the discussion in front of the class, practicing speaking and argumentation skills. Finally, in the Create stage, students create mind maps or infographics individually to summarize and visualize their learning. Through this stage, students not only learn about the traditions and science of astronomy but also develop critical, collaborative, and creative skills that are very important in the learning process. In the closing learning activity, students are given a learning reflection form and do a post-test in the form of multiple-choice questions which are done individually. At the observation stage, during the learning process, the teacher makes direct observations to determine the development of students' communication and collaboration skills. During the learning process, some observers assess the overall learning implementation process. The final stage is reflection, at this stage, the teacher and researcher reflect on the entire learning process that has been carried out starting from the analysis of post-test results, the results of observing students' skills, and the notes provided by the observer. Post-test results and first-cycle observation data can be seen in the following table:

Table 2.student 4C profile of cycle 1

4C	Average	Criteria
Critical Thinking	51.25	Less
Creative Thinking	55	Enough
Communication	64.84	Enough
Collaboration	64.37	Enough
Amount	**235.46**	
Average	**58.86**	**Enough**

Based on the results of the mapping data above, it is informed that the results in cycle one did not meet the expected results criteria in the range of 70-84 to get results in the good category. The Data shows that they are still classified as sufficient, the reflection results indicate that during the learning process, students still did not actively participate. This is because teachers have not made any efforts to encourage students to be more disciplined and active in learning, for example forming a learning agreement. This can be seen from the results of students' communication and collaboration skills which are still in the sufficient category so they need to be improved. Likewise, the results of students' critical thinking abilities are still in the poor category. The results of the reflection show that students are not yet accustomed to using their analytical skills in understanding reading or answering questions, so this means their understanding is still limited to basic knowledge. Considering these results, it is necessary to make improvements in the next cycle by providing activities to make learning agreements with students, providing informational reading materials accompanied by content containing concrete data that can later be linked to other content based on culture or regarding cultural traditions that will be discussed by the students.

Cycle 2

In cycle 2, researchers and teachers have reflected on what efforts must be made to improve students' 4C skills. Starting at the planning stage, the teacher recreates the teaching module that will be used for meetings in cycle 2, which will be held on Monday and Wednesday (29 and 31 July 2024) with a time allocation for the learning process of 80 minutes. The teaching module is improved starting from the details of each activity in the RADEC syntax used, creating new Student Worksheets (LKPD) that are adapted to the learning needs of this cycle by systematically compiling learning activities following the RADEC model which adds appropriate reading material content. Then, in this planning process, the teacher also creates a structure for student study groups, accompanied by providing different content for each group to allow students to analyze and compare information by exchanging views and ideas, which enriches the discussion and overall understanding of the material. Which can improve their critical thinking skills. At the implementation stage, in the preliminary activities the teacher begins by checking the presence of students, their readiness in the learning process, conducting an apperception of the material that has been studied previously, conveying the learning objectives then providing motivation, and finally inviting students to have discussions to form

an agreement class together. The content of the class agreement is that each student is committed to respecting each other, and then each student will try to actively participate in the discussion, either by asking questions or providing opinions. Apart from that, the contents of the class agreement also invite students to use good and correct Indonesian. At this activity stage, learning using the RADEC model begins at the Read stage, there are two activities. The first activity is that the teacher provides digital reading material via Microsoft Sway, which includes infographics in barcode form that can be scanned on students' LKPD sheets. The infographic content contains concrete data on tourist visits to Mount Bromo, data on fisheries production in the East Java area, and data on rice agricultural production in the East Java area.

In the second activity, the teacher provides videos of traditional and cultural content related to the reading content in activity one, namely videos of earth alms, sea alms, and Yadnya Kasada ceremony rituals in East Java. The content in this second activity shows the implementation of the Culturally Responsive Teaching approach. Then students access the link, read carefully, and note down important information to help their understanding. Next, in the Answer stage, students answer questions related to the reading material they have read. The teacher facilitates a question-and-answer session, allowing students to ask questions and discuss their answers, especially regarding infographics, to hone critical thinking and numeracy skills. At the Discuss stage, students are divided into groups to discuss the results of their answers. Each group elects a leader to discuss information from the reading material and looks for additional sources to strengthen their answers, with guidance from the teacher when necessary. After that, in the Explain stage, students present the results of group discussions in front of the class, compile the information obtained, and provide suggestions or comments on other groups' presentations, while the teacher makes an assessment. Finally, at the Create stage, the teacher encourages students to develop creativity by creating products that include the information they have learned, such as mind maps, posters, or infographics. Learners choose a format that suits their interests and start working independently. In the closing learning activity, the teacher provides a reflection form and multiple-choice post-test work form to individual students. In this cycle, there is also one observer who assesses the entire learning process in class. During the learning process, the teacher also makes direct observations to see the development of students' communication and collaboration skills using observation sheets that have been prepared at the planning stage. Data from post-test results and second-cycle observations can be seen in the following table:

Table 3. Student 4C profile of cycle 2

4C	Average	Criteria
Critical Thinking	78.43	Good
Creative Thinking	70.15	Good
Communication	82.50	Good
Collaboration	85.78	Very Good
Amount	**312.33**	
Average	**78.08**	**Good**

The data above shows that after improvements were made in cycle 2 of the RADEC model implementation by integrating the Culturally Responsive Teaching approach through cultural content and traditions, there was an increase in 21st-century skills (4C) among students during the learning process in that cycle. The improvement from cycle 1 was 58.56 rising to 78.08 in the good category.

Discussion

Based on the data results of the 4C recapitulation of students in the first cycle, it is still in the sufficient category. Several factors influence the first cycle of 4C students not being able to be classified in the good category. The results of the reflection on the learning process of the first cycle indicate that students are still adapting to the RADEC learning model being implemented. Because this model is still new to them, students need time to adapt to the flow and demands of each stage (read, answer, discuss, explain, create). Students still experience difficulties in understanding material related to culture and astronomy during the Read stage. As a result, their critical thinking skills have not developed well because they are still concentrating on basic understanding. This is also supported by the results of the percentage of students' answers in cycle 1 on the analytical critical thinking indicator of 16.67%, while the interpretation indicator was 86.45%, the evaluation indicator was 51.56%, and the inference indicator was 50%. These results reflect that students already have good basic knowledge, but are not yet able to use their basic knowledge in analyzing a problem, event, or passage they read. Likewise, it can be seen from the results of other indicators, namely that evaluation and inference are still low, reflecting that students are still unable to make conclusions and assess the impact of a problem. In line with Barasa, (2022) Statement that students' low understanding of material concepts will affect their critical thinking abilities, they tend to experience difficulties in explaining, giving examples, drawing conclusions, and making analogies regarding concepts.

Apart from that, students are not motivated to look for more information, this can be seen in creative thinking skills with an average of 55%, and reading literacy which is low and still needs to be developed as shown by the answers given at the Answer stage which tend to be simple and do not try to identify and elaborate on important information. Supported by the results of the average data recapitulation in the first cycle for each creative thinking indicator starting from the originality indicator of 60.93%, the fluency indicator of 76.56%, the flexibility indicator of 72.65%, and the elaboration indicator of 64.84%. Regarding the reasons why students' communication and collaboration skills are still relatively low, it can be seen during the learning process at the Discuss stage, the underlying thing is that there is no process of creating interactive class dynamics in the form of class agreements that support a safe learning atmosphere. This stage also shows low student participation in group discussions. Students still need teacher assistance to be able to distribute learning tasks during the group discussion process. Students who lack confidence or feel they don't understand also tend to be passive and

reluctant to speak in groups. This was also stated by Ginanjar et al., (2019) that students who have low self-confidence tend to lack the courage to express the ideas that are in their minds, ultimately their participation is also low. The observation results of the first cycle show that the share responsibility skills indicator stands at 60.93%, while the listening, questioning, and discussion indicator is at 59.37%. The leadership and initiatives indicator is 62.50%, the research innovation sharing indicator is 64.06%, and the teamwork indicator is 75%. These results suggest that students' abilities to communicate and collaborate are not yet fully developed. During the Explain stage, many students struggled to convey their discussion results clearly and in an organized manner. This observation is supported by the communication skills percentages in the first cycle: the expressing opinion, idea, and thought indicators are at 53.90%, classified as poor; the oral communication indicator is 64.84%; the listening to others indicator is 72.65%; the responding to others indicator is 70.31%; and the written communication indicator is 62.50%. Overall, while students' skills in expressing opinions, ideas, and thoughts are still low, other indicators fall within the fair to good category.

Likewise, at the Create stage, which aims to express their product creatively, many students still need additional help to complete the assignment. Some of the main reasons for this need for help include a lack of experience with creative methods such as creating mind maps or art-based projects, and requiring guidance to understand how to express their ideas. In addition, a limited understanding of the material in previous stages makes it difficult for students to integrate information and express it creatively because they lack prior knowledge. This lack of prior knowledge affects learners' thinking skills, leading to the conclusion that these abilities determine students' creative thinking capacity. (Ahmar et al., 2017). This condition indicates that students' critical and creative thinking abilities have not yet fully developed, which is influenced by a lack of in-depth understanding at the previous stage. As a result, they face difficulties in assembling and processing data creatively. In the first cycle, several factors such as a lack of understanding of the material, active participation and low levels of concentration, and non-interactive class dynamics, caused students to not achieve optimal 4C. Supported by the statement by Ginanjar et al., (2019), the ability to concentrate in learning is one of the factors that make students able to participate in learning. In the second cycle, these factors were improved through more targeted strategies, such as efforts to build class commitment to create a better learning atmosphere. Compared with the first cycle, students' 4C increased significantly in cycle 2. Critical thinking skills increased to 78.43%, creative thinking to 70.15%, communication increased to 82.50%, and collaboration increased to 81.25%. This increase was caused by several key factors implemented in the cycle 2 learning strategy.

First, this improvement was greatly assisted by the use of simpler and more informative infographic reading materials at the Read stage. This infographic presents concrete data such as the number of tourist visits to Mount Bromo, rice production data, and fisheries production in East Java visually and concisely. This makes it easier for students to understand complex information. In accordance with the statement by Rizkiyanti et al., (2021) that the use of

infographics is a way of conveying complex information to the audience in a simple and easy-to-understand way in a short time and as an effective effort to increase students' literacy interest. Infographics also function as a bridge to basic knowledge that helps students connect concrete data with the cultural content they read, such as sea almsgiving, earth almsgiving, and the Yadnya Kasada ceremony. By presenting information visually, students can focus more on analyzing and interpreting data and understanding how the data relates to the cultural context they are studying. Next, in the Answer section, students are allowed to answer questions that connect the data in the infographic with cultural traditions. These questions are designed to train students' literacy and numeracy skills and train critical thinking and analytical thinking skills. This process helps students explore more information and relate it to a broader context, strengthening the foundation of their understanding before moving on to the next step. Critical and strategic questioning can engage learners by encouraging active participation, guiding deeper understanding, promoting peer collaboration, and building confidence, as well as encouraging students to express their thoughts and think critically about the material being taught (Long et al., 2015; Rahima et al., 2023). This improvement can be seen from the results of cycle 2 for each critical thinking indicator: interpretation at 90.62%, analysis at 73.95%, evaluation at 67.18%, and inference at 78.12%. As a result, the average critical thinking ability increased from 51.25% in the previous cycle to 78.43%, which falls into the good category.

Second, class agreements increase class dynamics and student participation. Practicing a positive culture through class agreements can also help improve student discipline (Simanjuntak et al., 2024). Teachers help create shared rules, which make the learning environment safe and inclusive. It was agreed that students must respect each other, dare to ask questions, and actively participate without fear of making mistakes. With a more supportive learning atmosphere, students improve their communication skills and feel more comfortable interacting with teachers and peers. When active students are not rigid in learning activities, communication occurs between students and other students, as well as students and their teachers (Widodo et al., 2024). Likewise, more positive class dynamics also help students work together better on assignments and group discussions. Fourth, it appears that students have made significant progress in actively participating in the Discussion and Explanation stages. In the Discuss stage, students are involved in group discussions to discuss questions based on what they understand about infographics and cultural materials. This is influenced by the implementation of class agreements which encourage students to be aware of actively participating in every activity during the learning process. Supported by the statement from Hasibuan et al., (2023) that implementing class agreements is one of the practices of fostering a positive disciplinary culture among students. Apart from that, the discussion process was more focused and productive and was also based on students' better basic understanding of the Read and Answer stages. In the Explain stage, students present the results of the discussion in front of the class in a clearer and more structured manner. Their presentation skills improve, indicating progress in their communication skills and self-confidence. This is supported by the

observation results from cycle 2, where the expressing opinion, idea, and thought indicator is at 76.56%, the oral communication indicator is at 81.25%, the listening to others indicator is at 100%, the responding to others indicator is at 75%, and the written communication indicator is at 79.68% all of these indicators fall into the good and very good categories.

Lastly, students show increased creativity during the Create stage. They are asked to create work such as posters or infographics that show their understanding of the traditions or cultures they study. Compared to the first cycle, where students still needed additional help, in the second cycle, students were able to carry out tasks more freely and use their ideas. This is also supported by efforts to integrate the CRT approach with cultural content that is close to students' daily lives. In line with Taher, (2023) statement the Culturally Responsive Teaching approach can increase students' internal motivation, inspire courage, and foster self-confidence to express opinions. In this way, students can collaborate with their friends in their study groups. Their ability to create and produce innovative products shows an increase in creative thinking skills by 70.15%, which is included in the good category. Each indicator experienced an increase in the good category, with the fluency indicator at 89.94%, flexibility at 89.84%, originality at 83.59%, and elaboration rising to 87.50%. This research provides results that are in line with previous research which shows that the RADEC model (read, answer, discuss, explain, create) is effective in improving students' 4Cs (critical thinking, creativity, communication, collaboration). The same results were shown by Kiska et al., (2024) that this study showed an increase after the implementation of cycle I, where meetings one and two experienced an increase of 6.6%. On the other hand, in cycle II, meetings one and two recorded an increase of 13.34%, indicating that the use of the RADEC learning model can improve students' collaboration skills in science learning. Other research informs that there was an increase in students' critical thinking skills before and after treatment using the RADEC learning model from an average of 74% to 86% (Yulianti et al., 2022). Research by Widyarti et al., (2024) also informs that the RADEC model can improve students' creative thinking skills in each cycle by 67.27% in cycle I, 81.73% in cycle II, and 86.63% in cycle III. In this research, significant improvement occurred in 4C in each learning cycle, with improvements in critical thinking, creative thinking, communication, and collaboration skills respectively reaching good and very good categories in the second cycle, also supported by the integration of the Culturally Responsive Teaching approach applied in the form of learning content is reading. This research supports previous findings that the integration of RADEC with the CRT approach not only promotes improved academic skills but also empowers students through culturally relevant learning. The CRT approach helps students better engage with course material because the material is presented in a context related to their cultural background, creating an inclusive and interactive learning environment. These results are supported by Thus, this research further strengthens the evidence that the RADEC model integrated with Culturally Responsive Teaching is effective in improving the 4Cs, and can be used as a relevant and adaptive learning strategy to be applied in the Indonesian educational context.

CONCLUSION

The implementation of the RADEC model (Read, Answer, Discuss, Explain, Create) combined with the Culturally Responsive Teaching approach has proven to be effective in improving students' 4C of the 21st century (Critical Thinking, Creativity, Communication, Collaboration). The results of the two cycles showed significant improvements in all aspects of the 4C. Critical thinking skills increased from 51.25% (poor category) in the first cycle to 78.43% (good category) in the second cycle. Creativity skills increased from 55% (fair category) to 70.15% (good category), communication skills increased from 64.84% (fair category) to 82.50% (good category), and collaboration skills from 64.37% (fair category) to 85.78% (very good category). The use of simpler and more culturally relevant teaching materials, as well as a more supportive classroom atmosphere, were the main factors in achieving this improvement in the second cycle. With a Culturally Responsive Teaching approach, students can relate the material to the social and cultural context they are familiar with so that they are more involved in the learning process. An active and interactive classroom atmosphere also contributes to increased collaboration, active participation, and critical and creative thinking skills. Overall, the RADEC model combined with Culturally Responsive Teaching has proven to be effective in improving the 4C and is relevant to be applied in learning in Indonesia in the modern era. This research still has limitations regarding the implementation of the RADEC model which is integrated with the Culturally Responsive Teaching approach on one theme in social studies learning. So the recommendation that can be given to future researchers is to implement it in learning other themes in the material being taught to be able to find out the effectiveness of using the RADEC model in the learning process which not only measures 4C skills but also other skills that students need to develop.

REFERENCES

Adhiriyanthi, S., Solihin, H., & Arifin, M. (2021). Improving Students' Creative Thinking Skills Through Guided Inquiry Practicums Learning with STEM Approach. *Journal of Physics: Conference Series*, *1806*(1). https://doi.org/10.1088/1742-6596/1806/1/012180

Ahmar, D. S., Ramlawaty, R., Masri, M., & Ahmar, A. S. (2017). Relationship Between Prior Knowledge and Creative Thinking Ability in Chemistry. *Educational Process: International Journal*, *6*(3), 18–25. https://doi.org/10.22521/edupij.2017.63.2

Ambarwati, W. O. A., Jusniar, & Kasmawati. (2024). Peningkatan Keterampilan Kolaborasi Menggunakan Model Problem Based Learning (PBL) Peserta Didik Kelas VII SMP Negeri 3 Sungguminasa. *Jurnal Pemikiran Dan Pengembangan Pembelajaran*, *6*(2), 822-831. https://doi.org/10.31970/pendidikan.v6i2.1080

Anwar, S., & Umam, H. (2023). Transformative Education: Emphasizing 21st Century Skills and Competencies in The Independent Learning Curriculum. *AIM: Journal of Islamic Education Management*, *1*, 1–16. https://doi.org/10.15575/aim.v1i1.28886

Apriansah, A., Sujana, A., & Ismail, A. (2024). Pengaruh Pembelajaran RADEC Terhadap Pemahaman Konsep dan Kreativitas Siswa Kelas IV pada Materi Transformasi Energi. *Didaktika: Jurnal Kependidikan*, *13*(1), 45–56. https://doi.org/10.58230/27454312.456

Barasa, T. (2022). Forming Critical Thinking Concepts in Students. *EDUKASIA: Jurnal Pendidikan Dan Pembelajaran*, *3*(3), 1069–1072.

Chairunnisa, C. C., Prihantini, & Sukardi, R. R. (2022). Model Read, Answer, Discuss, Explain, and Create untuk Meningkatkan Hasil Belajar IPS Siswa pada Pembelajaran Daring. *Jurnal Educatio FKIP UNMA*, *8*(1), 151–156. https://doi.org/10.31949/educatio.v8i1.1819

Facione, P. (2015). *Critical Thinking: What It Is and Why It Counts*.

Fitri, H., Fitria, Y., & Sukma, E. (2023). Development Of Teaching Materials Based on The Radec Model to Improve the Hots of Grade V Elementary School Students. *Jurnal Cakrawala Pendas*, *9*(1). https://doi.org/10.31949/jcp.v9i1.3847

Fitriah, L., Gaol, M. E. L., Cahyanti, N. R., Yamalia, N., Maharani, N., Iriani, I. T., & Surayanah, S. (2024). Pembelajaran Berbasis Pendekatan Culturally Responsive Teaching Di Sekolah Dasar. *JoLLA Journal of Language Literature and Arts*, *4*(6), 643–650. https://doi.org/10.17977/um064v4i62024p643-650

Ginanjar, E. G., Darmawan, B., & Sriyono, S. (2019). Faktor-Faktor Yang Mempengaruhi Rendahnya Partisipasi Belajar Peserta Didik Smk. *Journal of Mechanical Engineering Education*, *6*(2), 206–219. https://doi.org/10.17509/jmee.v6i2.21797

Hamdu, G., Muiz L, D. A., & Silma N, G. (2020). 4C's Skills Performance Assessment in STEM Learning in Elementary School. *Universal Journal of Educational Research*, *8*(12A), 7668–7675. https://doi.org/10.13189/ujer.2020.082553

Hasibuan, A., Gultom, C. R., Mahulae, S., & Juliana, J. (2023). Sosialisasi Penerapan Budaya Positif Melalui Kesepakatan Kelas di Sekolah SMA Negeri 3 Kisaran Kabupaten Asahan. *Prosiding Konferensi Nasional Pengabdian Kepada Masyarakat Dan Corporate Social Responsibility (PKM-CSR)*, *6*, 1–7. https://doi.org/10.37695/pkmcsr.v6i0.2201

Indarta, Y., Jalinus, N., Waskito, W., Samala, A. D., Riyanda, A. R., & Adi, N. H. (2022). Relevansi Kurikulum Merdeka Belajar dengan Model Pembelajaran Abad 21 dalam Perkembangan Era Society 5.0. *Edukatif: Jurnal Ilmu Pendidikan*, *4*(2), 3011–3024. https://doi.org/10.31004/edukatif.v4i2.2589

Isnaini, I., Atmazaki, A., Ahda, Y., Lufri, L., Elizar, E., Amran, A., Fitri, N., Afriwes, A., & Hasan, A. (2023). *Analysis of Critical Thinking, Creativity, Communication, and Collaboration Skills (4C) for Junior High School Students* (pp. 191–197). https://doi.org/10.2991/978-94-6463-166-1_27

Kiska, N. D., Haryanto, E., & Indryani, I. (2024). Improving Students' Collaboration Skills Using the RADEC Learning Model in Elementary School Science Learning. *Jurnal Pijar Mipa*, *19*(2), 240–247. https://doi.org/10.29303/jpm.v19i2.6606

Kusumaningpuri, A. R., & Fauziati, E. (2021). Model Pembelajaran RADEC dalam Perspektif Filsafat Konstruktivisme Vygotsky. *Jurnal Papeda: Jurnal Publikasi Pendidikan Dasar*, *3*(2), 103–111. https://doi.org/10.36232/jurnalpendidikandasar.v3i2.1169

Long, M., Blankenburg, R., & Butani, L. (2015). Questioning as a teaching tool. *Pediatrics*, *135*(3), 406–408. https://doi.org/10.1542/peds.2014-3285

Machali, I. (2022). Bagaimana Melakukan Penelitian Tindakan Kelas Bagi Guru? *Indonesian Journal of Action Research*, *1*(2), 315–327. https://doi.org/10.14421/ijar.2022.12-21

Maulana, Y., Sopandi, W., Sujana, A., Robandi, B., Agustina, N. S., Rosmiati, I., Pebriati, T., Kelana, J. B., Fiteriani, I., Firdaus, A. R., & Fasha, L. H. (2022). Development and Validation of Student Worksheets Air Theme based on the RADEC Model and 4C Skill-oriented. *Jurnal Penelitian Pendidikan IPA*, *8*(3), 1605–1611. https://doi.org/10.29303/jppipa.v8i3.1772

Muliarta, I. K. (2018). Perubahan Dari TCL (Teacher Center Learning) ke SCL (Student Center Learning). *Jurnal Ilmu Pendidikan*, *1*(2), 76–85.

Panggabean, F. T. M., Puspa Olivia Pardede, Rizky Mauli Dini Sitorus, Yani Kartini Situmorang, Evan S Naibaho, & Juan Samuel Simanjuntak. (2021). Application of 21st Century Learning Skills Oriented Digital-Age Literacy to Improve Student Literacy HOTS in Science Learning in Class IX SMP. *Jurnal Mantik*, *5*(3), 1992–1930.

Pratama, Y. A., Sopandi, W., & Hidayah, Y. (2019). RADEC Learning Model (Read-Answer-Discuss-Explain and Create): The Importance of Building Critical Thinking Skills in Indonesian Context. *International Journal for Educational and Vocational Studies*, *1*(2). https://doi.org/10.29103/ijevs.v1i2.1379

Putrawangsa, S., & Hasanah, U. (2022). Analisis Capaian Siswa Indonesia Pada PISA dan Urgensi Kurikulum Berorientasi Literasi dan Numerasi. *EDUPEDIKA: Jurnal Studi Pendidikan Dan Pembelajaran*, *1*(1). https://doi.org/10.60004/edupedika.v1i1.1

Rahima, A. R., Kadariyah, N., & Hasanah, N. I. (2023). The Use of Questioning Strategy in Promoting Students Critical Thinking. *Journal of English Language Teaching and English Linguistics*, *8*(2), 69–79. https://doi.org/10.31316/eltics.v8i2.5212

Rahmawati, Y. P., & Salehudin, M. (2021). Optimalisasi Pembelajaran Abad 21 pada SMP dan SMA. *Journal of Instructional and Development Researches*, *1*(3), 112–122. https://doi.org/10.53621/jider.v1i3.67

Rizkiyanti, N., Muktiarni, M., & Mupitah, J. (2021). The Role of Infographic Learning Media in Increasing Literature Interest of SMP Students During Pandemic. *Jurnal Abmas*, *21*(1), 51–57. https://doi.org/10.17509/abmas.v21i1.38718

Simanjuntak, M. K., Kesuma, S., & Muslim, Y. (2024). Penerapan Budaya Positif Melalui Kesepakatan Kelas untuk Meningkatkan Disiplin Belajar pada Peserta Didik Kelas X SMA Negeri 13 Medan. *Consilium: Education and Counseling Journal*, *4*(2), 253-258. https://doi.org/10.36841/consilium.v4i2.4469

Sopandi, W. (2019). Sosialisasi dan Workshop Implementasi Model Pembelajaran RADEC Bagi Guru-Guru Pendidikan Dasar dan Menengah. *Pedagogia: Jurnal Pendidikan*, *8*(1), 19–34. https://doi.org/10.21070/pedagogia.v8i1.1853

Taher, T. (2023). Analisis Keterampilan Komunikasi dan Kolaborasi Siswa Introvert dengan Pendekatan Culturally Responsive Teaching. *Jambura Journal of Educational Chemistry*, *5*(1), 21–27. https://doi.org/10.34312/jjec.v5i1.17463

Widodo, W., Suciati, S., & Hidayat, R. (2024). Implementasi Model Pembelajaran RADEC (Read Answer Discuss Explain Create) Serta Dampaknya pada Kemampuan Berpikir Tingkat Tinggi dan Kemampuan Komunikasi. *Jurnal Studi Guru Dan Pembelajaran*, *7*(1), 270–285. https://doi.org/10.30605/jsgp.7.1.2024.9999

Widyarti, O., Rokhmaniyah, R., & Suryandari, K. C. (2024). Penerapan Model RADEC untuk Meningkat Kemampuan Berpikir Kreatif Siswa Sekolah Dasar dalam Pembelajaran IPA. *Kalam Cendekia: Jurnal Ilmiah Kependidikan*, *12*(1). https://doi.org/10.20961/jkc.v12i1.75374

Yanto, S., Nasution, N., & Wisnu, W. (2019). Improve Creative Thinking Ability with Posing Problem Learning. *The Indonesian Journal of Social Studies*, *2*(1), 44-50. https://doi.org/10.26740/ijss.v2n1.p44-50

Yujobo, Y. J. (2015). Multiple Assessment Strategies and Rubrics for the 4Cs of 21st Century Skills. *The Asian Conference on Language Learning*.

Yulianti, Y., Lestari, H., & Rahmawati, I. (2022). Penerapan Model Pembelajaran RADEC Terhadap Peningkatan Kemampuan Berpikir Kritis Siswa. *Jurnal Cakrawala Pendas*, *8*(1), 47–56. https://doi.org/10.31949/jcp.v8i1.1915