

Improvement of Learning Outcomes Through A *Culturally Responsive Teaching* (CRT) Approach Based on Media Science Adventure Board Game in Grade IV Elementary School Students

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This classroom action research was motivated by low learning outcomes and limited student engagement in Science and Social Studies (IPAS) learning among fourth-grade students. This study aimed to improve students' learning outcomes through the implementation of the Culturally Responsive Teaching (CRT) approach supported by the Science Adventure Board Game. The study employed a classroom action research design conducted in two cycles, with each cycle consisting of planning, action, observation, and reflection. The participants were fourth-grade students at SD N Muktiharjo Kidul 02. Data were collected through learning outcome tests, observations, and interviews, and analyzed using quantitative and descriptive qualitative techniques. The results showed an improvement in students' learning outcomes from the Pre-Cycle, with an average score of 70.54 and 32% classical mastery, to an average score of 80.36 with 71% mastery in Cycle I, and further increased to an average score of 90.18 with 89% mastery in Cycle II. The implementation of CRT supported by the Science Adventure Board Game created a more contextual, interactive, and engaging learning experience. Therefore, this approach can serve as an alternative strategy for improving students' IPAS learning outcomes.

Keywords: Culturally Responsive Teaching, Science Adventure Board Game, learning outcomes

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1. Introduction

Education is one of the important aspects in the development of the quality of human resources. Through education, students not only gain knowledge, but also develop thinking skills, attitudes, the ability to work together, and the ability to apply knowledge in daily life. At the elementary school level, learning needs to be designed according to the characteristics of student development so that the learning process takes place actively, meaningfully, and fun. Therefore, the selection of approaches, models, and learning media that suit the needs and characteristics of students is one of the important things in supporting learning success.

One of the subjects that has an important role in developing students' understanding of the environment is Natural and Social Sciences (IPAS). IPAS is a subject that integrates natural and social knowledge so that students can understand various phenomena that occur in the environment and the relationship between humans and their environment (Sugih et al., 2023). Social studies learning is not only oriented towards mastering concepts, but also provides opportunities for students to observe, ask questions, identify problems, discuss, and connect knowledge with daily life (Alfatonah et al., 2023). Therefore, IPAS learning needs to be carried out contextually and actively involve students.

One of the learning successes can be seen through student learning outcomes. Learning outcomes show changes in abilities and behaviors obtained after students follow the learning process through interaction with teachers, learning resources, environment, and learning experiences (Rusmono, 2017). Learning

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outcomes include cognitive, affective, and psychomotor domains (Nafiati, 2021). In this study, learning outcomes are focused on the cognitive realm because the improvement in learning outcomes is measured through tests after students participate in social studies learning. Learning outcomes that are not optimal can be influenced by various factors, both internal and external, such as interests, motivation, learning methods, school environment, learning strategies, and the use of learning media. Thus, efforts to improve learning outcomes need to be dissertated by improving the learning process so that students get a more active and meaningful learning experience.

Based on the results of observations, interviews, assistance, and learning activities at the guided cycle stage in grade IV of SD N Muktiharjo Kidul 02, it was found that the learning outcomes of some students were still not optimal. This condition can be seen from the low involvement of students during the learning process, lack of enthusiasm in participating in activities, and there are still students who lack focus when the teacher delivers the material. Some students are seen talking and playing during learning. In addition, learning still tends to use package books and whiteboards as the main source and media. The use of varied learning media is not optimal, so learning is less interesting for some students. Learning activities that are more dominated by teacher explanations also cause students to explore, discuss, collaborate, and connect material with daily experiences to be limited.

These conditions show a gap between expected learning and the conditions found in the classroom. IPAS learning should provide opportunities for students to build understanding based on their experiences and the surrounding environment, while the learning conditions found still tend to be teacher-centered. The characteristics of elementary school students require concrete, interactive, and contextual learning experiences. Therefore, learning actions are needed that are not only oriented towards the delivery of material, but also able to increase student engagement and connect learning with students' experiences, social environment, and cultural backgrounds.

One approach that can be used to create more contextual learning is *Culturally Responsive Teaching* (CRT). CRT is an approach that integrates students' cultural backgrounds, experiences, knowledge, and living environment into the learning process. This approach provides opportunities for students to be actively involved through interaction, communication, and cooperation with peers and makes the diversity of students' experiences part of the learning process (Willenda et al., 2024). Lasmasih et al., (2025) also explained that CRT can be a foundation to increase student involvement and empowerment in achieving diverse potential. The application of CRT at the elementary school level has also shown potential in improving student learning outcomes (Masfiastutik et al., 2024). Research Lasmiasih et al., (2025) showed an increase in learning outcomes through the application of CRT supported by spinner media, while Princess (2024) shows that the implementation of CRT can improve Indonesian language learning outcomes. In addition, the implementation of *Problem Based Learning* integrated with CRT can also be used as an effort to improve the learning outcomes of elementary school students (Saputra & Wahyana, 2025).

In addition to the learning approach, the use of interesting and interactive media is needed to support student involvement. One of the media that can be used is *Board games*. *Board game* is a board-based game that involves various components, rules, and game objectives that can be adapted to learning needs. In the context of education, *Board games* can contain materials, questions, and challenges that allow students to learn through play, discussion, answering questions, and solving problems (W. C. D. Safitri, 2020). Darmo et al., (2022) explains that *Board games* is a game that uses certain objects on a board-shaped surface based on predetermined rules. Usage *Board games* As a learning medium, it can create a more interesting and interactive learning experience. Research (Astiti & Rosyada, 2025) indicates that the use of the media *Board games* in social studies learning can increase student activity and involvement. Research Anggraeni & Yulianti (2024) indicates that the use of *Board games* in elementary school learning

can increase student engagement and motivation to learn. Meanwhile, media development *Board games* in the learning of social studies class IV shows that the media can be used to support the learning process and improve student learning outcomes (Octavia & Wulandari, 2026).

Based on these characteristics, *Science Adventure Board Game* was developed as a game-based learning medium that combines the concept of adventure with science materials. This media provides a learning experience through game trips or missions that are equipped with questions, challenges, bonuses, and activities related to learning materials. In this study, *Science Adventure Board Game* is designed for science learning in grade IV by incorporating environmental contexts, experiences, and cultures that are close to students' lives. The media consists of game boards, pawns, dice, question cards, challenge cards, bonus cards, cultural mission cards, and game instructions. With these components, students not only participate in games, but also engage in learning activities through answering questions, discussing, solving problems, and connecting the material to daily life.

The use of *Science Adventure Board Game* can also be strengthened through the application of *the Problem Based Learning* (PBL) model. PBL places problems as the starting point of learning and provides opportunities for students to understand problems, conduct investigations, discuss, find solutions, and communicate the results of their thoughts. The integration of PBL with CRT allows the problems used in learning to be associated with experiences, environments, and cultures that are close to students' lives. Meanwhile, *Science Adventure Board Game* plays a role as a medium that facilitates these activities in a more interactive way through questions, challenges, and missions. Thus, PBL functions as a model that provides a structure for learning activities, CRT provides a context for students' experiences and culture, while *Science Adventure Board Game* is a medium that supports student engagement.

A number of previous studies have shown that CRT and media approaches *Board games* has the potential to improve the quality of learning. Naimah et al., (2019) develop *Science Adventure Board Game* as a learning medium and shows that the media is suitable for use and can help improve students' problem-solving skills. Audina et al., (2026) through class action research shows that the use of *Board games* in social studies learning can improve student learning outcomes. Amanda et al., (2024) also showed that the application of CRT can improve the learning outcomes of IPAS in elementary schools. Next Hidayatullah & Gunansyah, (2026) develop *Eflona Board Game Help flashcard* which shows feasibility, positive response, and effectiveness in supporting improved learning outcomes. Research Astiti & Rosyada, (2025) also indicates that the use of *Board games* in social studies learning can increase student activity and involvement.

Although previous research has shown the benefits of CRT and *board games* in learning, research that specifically integrates the CRT approach with *Science Adventure Board Game* media in IPAS learning to improve the learning outcomes of grade IV elementary school students is still limited. Previous research tends to examine CRT as a learning approach or *board game* as a separate medium. Therefore, this study offers novelty in the form of integrating the *Culturally Responsive Teaching* (CRT) approach, *Problem Based Learning* (PBL) model, and *Science Adventure Board Game media* in science learning learning. The integration is expected to create learning that is contextual, active, interactive, and in accordance with students' experiences and cultural environment.

Based on the problems and previous research studies, this study aims to improve the learning outcomes of IPAS through the application of *the Culturally Responsive Teaching* (CRT) approach based on *Science Adventure Board Game* media in grade IV elementary school students. The application of actions is carried out by integrating *the Problem Based Learning* (PBL) model as a framework for learning activities, CRT as an approach that connects material with students' cultural experiences and contexts, and *Science*

Adventure Board Game as a medium that facilitates learning activities through play, discussion, answering questions, and solving challenges.

2. Research Methods

This research is a Classroom Action Research (PTK) which aims to improve and improve the learning process and outcomes. Arikunto (2021) explained that PTK aims to analyze the causal relationship of interventions that are applied deliberately in learning activities. The purpose of this research is to improve the learning outcomes of grade IV students through the application of the Culturally Responsive Teaching (CRT) approach based on Science Adventure Board Game media.

The research was carried out in two cycles. Each cycle consisted of two meetings and four stages that referred to the class action research model proposed by (Arikunto, 2021), i.e. planning (*Planning*), execution of actions (*Acting*), observation (*Observing*), and reflection (*Reflection*). At the planning stage, the researcher prepares (1) teaching materials or materials that are in accordance with the learning objectives, learning outcomes, and characteristics of grade IV students; (2) determine the CRT approach combined with the learning model *Problem Based Learning* (PBL); (3) preparing media *Science Adventure Board Game* that integrate cultural elements and life contexts that are close to students' experiences; (4) prepare learning tools, LKPDs, grids and evaluation question instruments, as well as observation instruments. The implementation stage of actions is carried out by applying the CRT approach, PBL model, and media *Science Adventure Board Game*. Learning consists of preliminary activities, core activities, and closing activities. In core activities, students are faced with problems related to learning materials and the context of daily life. Students work in groups to identify problems, conduct investigations, discuss, and find solutions. Media *Science Adventure Board Game* It is used as an interactive learning tool through question cards, challenge cards, bonus cards, and cultural missions. Cultural elements and students' daily experiences are used as context to help understand the learning material.

To illustrate the research steps used, the process is shown in Figure 1 below.

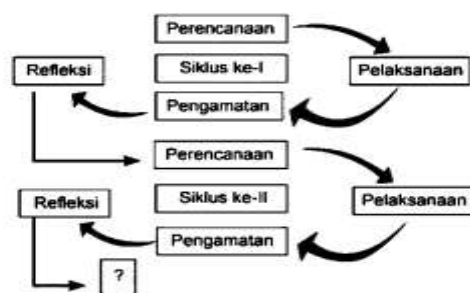


Image 1. Classroom Action Research Procedure, Arikunto (2021)

The observation stage is carried out simultaneously with the implementation of the action. Observation is carried out by the researcher with colleagues as observers using the observation instruments that have been prepared. The aspects observed include teacher activities, student activities, student involvement in learning, implementation of PBL stages, application of the CRT approach, use of *Science Adventure Board Game media*, as well as responses and class conditions during the learning process. Furthermore, the reflection stage is carried out after all activities in each cycle are completed. The researcher together with the classroom teacher and observer analyze the results of observations, test results, and findings during the learning process. The results of the reflection are used to determine the success and shortcomings of actions and become the basis for improvement in the next cycle. If the success indicators have been achieved, the research can be stopped.

The research was carried out collaboratively between researchers, grade IV teachers of SD N Muktiharjo Kidul 02, and peers as observers. The subject of this research was grade IV students of SD Negeri Muktiharjo Kidul 02, Pedurungan District, Semarang City, in the odd semester of the 2026/2027 school year. The number of grade IV students was 28 students, consisting of 13 male students and 15 female students. The research was carried out in August 2026 in accordance with the IPAS learning schedule in grade IV. Each cycle was carried out in two meetings.

The data collection techniques used in this study include observation, interviews, tests, and documentation. The observation technique was used to obtain data on the process of implementing actions during social studies learning in grade IV elementary school students. Observation was carried out by observing the activities of teachers and students during learning who applied *Culturally Responsive Teaching* (CRT) through *the Problem Based Learning* (PBL) model assisted by *Science Adventure Board Game* media. The aspects observed included student involvement in learning, students' ability to relate material to experiences and cultural contexts in the surrounding environment, the implementation of PBL stages, and the use of *Science Adventure Board Game media*. Observation is also used to determine the condition of the class and the response of students during the learning process. Observation activities are carried out by researchers and collaborators using observation sheets that have been prepared based on predetermined indicators.

The interview technique was used to explore additional information from classroom teachers and several students regarding experiences, opinions, impressions, and obstacles during the implementation of learning with *the Culturally Responsive Teaching* (CRT) approach based on *Science Adventure Board Game media*. The interviews were conducted in a semi-structured manner so as to provide flexibility to the researcher in developing questions according to the needs of the research. The interview data was used as supporting data to strengthen the observation results and find out the response of teachers and students to the actions given.

The test is used to measure student learning outcomes after the implementation of actions in each cycle. The test is arranged based on learning objectives, achievement indicators, and the material that has been taught. The test is in the form of pretest and *posttest evaluation questions* in the form of multiple choice. The learning outcome test is given at the beginning (pre-cycle) and at the end of each cycle to determine the development of student learning outcomes after being given an action. The test results are used to determine individual scores, grade averages, and the percentage of student learning completeness. Furthermore, documentation techniques are used to collect supporting data in the form of photos of learning activities, learning tools, student work results, test results, and other documents relevant to the implementation of the research. Documentation is used to complement and strengthen the data obtained through observation, interviews, and tests.

Data processing and analysis were carried out to determine the improvement of student learning outcomes and the implementation of the learning process after the application of *the Culturally Responsive Teaching* (CRT) approach based on *Science Adventure Board Game media*. The test result data was analyzed quantitatively to determine individual scores, grade average scores, and percentage of student learning completeness in the initial conditions (Pre-Cycle), Cycle I, and Cycle II. Observation data was analyzed quantitatively in the form of scores and percentages to determine the implementation of learning and the activities of teachers and students during the action process. Meanwhile, the data from interviews and documentation were analyzed descriptively to provide supporting information regarding responses, experiences, and conditions during the implementation of learning.

The test result data was analyzed to determine the change in the average grade of the class and the percentage of learning completeness based on the predetermined KKM. The assessment of test results used the formula:

$$\text{Value} = x 100 \frac{\text{skor yang diperoleh}}{\text{skor maksimal}}$$

Students are declared complete individually if they obtain a score of ≥ 78 , in accordance with the KKM set in grade IV of SD Negeri Muktiharjo Kidul 02. The average value of a class is calculated using the formula:

$$\bar{X} = \frac{\sum X}{N}$$

Description:

$\bar{X}$: grade point average
 $\sum X$: total of all pupil grades
 N : total number of pupils

The average grade point of the class is used to determine the change in overall student learning outcomes in the initial condition (pre-cycle), cycle I, and cycle II.

Classical learning completeness is calculated by comparing the number of students who obtained a score of ≥ 78 with the number of all students. The formula used is:

$$KK = x 100\% \frac{X}{Z}$$

Description:

CD : Classical Completeness
 X : Number of students who obtained $\geq$ MOH score
 Z : Total number of students

Classical learning completeness is achieved if $\geq 85\%$ of students obtain a score of ≥ 78 .

Observation data was obtained through observation sheets used during the learning process in each cycle. Observation was carried out to determine the implementation of learning with the *Culturally Responsive Teaching* (CRT) approach based on *Science Adventure Board Game* media, as well as to observe students' activities and involvement during the learning process. The observation instrument used an assessment scale of 1-4 with the following criteria.

Table 1. Criteria for observation instruments

Score	Criteria
1	Less
2	Enough
3	Good
4	Excellent

The percentage of observation results is calculated using the formula:

$$P = x 100\% \frac{F}{N}$$

Description:

P : Percentage of observation results
 F : the score obtained
 N : maximum score

Table 2. Percentage of observation results category

Percentage	Categories
81-100%	Excellent
61-80%	Good
41-60%	Enough
0-40%	Less

The results of the observation were used to determine the level of learning implementation and activities of teachers and students during the action process. The implementation of learning and activities of teachers and students is declared to meet the success indicators if it reaches $\geq 80\%$.

The indicators of research success are determined based on the improvement of learning outcomes and the implementation of the learning process after the application of *the Culturally Responsive Teaching* (CRT) approach based on *Science Adventure Board Game* media. This class action research is declared successful if it meets the indicators, namely classical learning completeness reaches $\geq 85\%$, at least 85% of the number of students gets a score of ≥ 78 ; the average class score reaches ≥ 78 ; and student activities during learning reach $\geq 80\%$ based on the results of the observation sheet. If the success has been achieved in cycle II, then the research action is declared successful and the research can be stopped. On the other hand, if the success indicators have not been achieved, the reflection results are used as a basis to determine further improvement actions.

3. Results And Discussion

This class action research was carried out on grade IV students of SD N Muktiharjo Kidul 02 which amounted to 28 students, consisting of 13 male students and 15 female students. The research was carried out in two cycles, each cycle consisted of two meetings with stages of planning, implementation of actions, observation, and reflection. Research data were obtained through learning outcome tests, observation of student activities, observation of teacher/researcher activities, interviews, and documentation. Learning outcome tests were given at the pre-cycle stage, end of Cycle I, and end of Cycle II to determine the improvement of student learning outcomes after the application of *the Culturally Responsive Teaching* (CRT) approach based on *Science Adventure Board Game* media with *the Problem Based Learning* (PBL) learning model.

The results of the study showed an increase in student learning outcomes from the Pre-Cycle to Cycle II conditions. In the Pre-Cycle, the number of scores obtained was 1,975 with an average score of 70.54. Of the 28 students, only 9 students achieved KKM of 78 so that classical completeness reached 32%, while 19 students or 68% had not reached KKM. After the implementation of the action in Cycle I, the number of scores increased to 2,250 with an average score of 80.36. Students who reached the KKM increased to 20 students or 71%, while 8 students or 29% were not completed. In Cycle II, the number of scores increased again to 2,525 with an average score of 90.18. A total of 25 students or 89% have reached the KKM, while 3 students or 11% have not reached the KKM.

Table 3. Comparison of Student Learning Outcomes

Yes	Indicator	Pre-Cycle	Cycle I	Cycle II
1	Number of Pupils	28	28	28
2	Total Values	1.975	2.250	2.525
3	Average Score	70,54	80,36	90,18
4	Minimum Score	40	30	65
5	Maximum Value	85	100	100
6	Completed Pupil	9	20	25
7	Pupils Are Incomplete	19	8	3
8	Classical Completeness	32%	71%	89%
9	Incomplete Percentage	68%	29%	11%

Source: Research Results Data, 2026.

Based on Table 3, it can be seen that student learning outcomes have gradually improved after being given actions. The average score increased from 70.54 in the Pre-Cycle to 80.36 in Cycle I and 90.18 in Cycle II. Classical completeness also increased from 32% in the Pre-Cycle to 71% in Cycle I and 89% in Cycle II. The increase shows that the learning actions provided are able to improve student learning outcomes and achieve the set research success indicators, namely classical completeness at least 85%.

To clarify the increase in the average value of learning outcomes at each stage of the study, the comparison

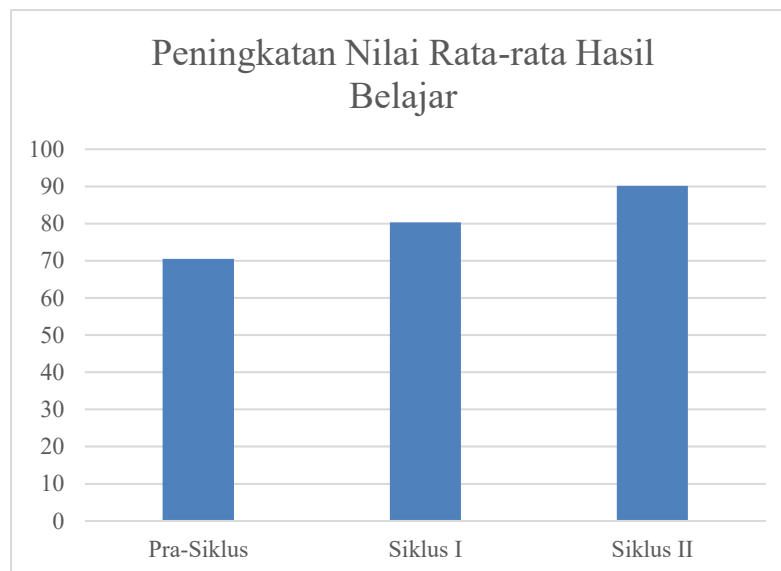


Image 2. Diagram of Increasing Average Scores of Student Learning Outcomes

is presented in the following diagram.

Based on Figure 2, the average score of learning outcomes increased from 70.54 in the Pre-Cycle to 80.36 in the First Cycle and 90.18 in the Second Cycle. Thus, the increase in the average score from the Pre-Cycle to the Second Cycle is: $90.18 - 70.54 = 19.64$.

Meanwhile, the increase in classical completeness from Pre-Cycle to Cycle II was: $89\% - 32\% = 57\%$.

The improvement shows that the application of the *Culturally Responsive Teaching* (CRT) media-based *Science Adventure Board Game* provide positive changes to the learning outcomes of IPAS grade IV students. The learning outcomes in this study focus on the cognitive domain which is measured through learning outcome tests, while student activities during the learning process are used as supporting data. This is in accordance with the opinion Nafiati, (2021) which explains that learning outcomes include the cognitive, affective, and psychomotor domains. The cognitive realm is related to the ability to think and mastery of knowledge, while the affective and psychomotor realms are related to attitudes and the ability to perform an action.

The increase in learning outcomes was also supported by changes in student activities during the learning process. The observation results showed that student activities in Cycle I obtained a score of 28 out of a maximum score of 40 with a percentage of 70% and were in the good category. In Cycle II, the score increased to 37 with a percentage of 93% and was in the very good category. The increase of 23 percentage points showed that students were increasingly involved in activities of identifying problems, discussing, cooperating, participating in games, answering questions, solving challenges, and conveying the results of discussions.

Table 4. Comparison of Student and Teacher/Researcher Activities

Yes	Observed Aspects	Cycle I	Cycle II	Improvement
1	Student activities	70%	93%	23%

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Yes	Observed Aspects	Cycle I	Cycle II	Improvement
2	Teacher/researcher activities	70%	98%	28%

Source: Observation data, 2026

Based on Table 4, student activity increased from 70% in Cycle I to 93% in Cycle II. Teacher/researcher activity also increased from 70% to 98%. This increase shows an improvement in student involvement and learning implementation from one cycle to the next. In Cycle I, some students were still passive in expressing opinions, connecting material with cultural context, and conveying the results of discussions. After improvements were made in Cycle II through clearer directions, more equal participation opportunities, and more intensive guidance, student activity increased to the very good category.

The increase in activities supports the improvement of learning outcomes due to the media *Science Adventure Board Game* provide opportunities for students to be directly involved in the learning process.



Image 3. The Process of Granting PTK Actions



Image 4. Media *Science Adventure Board Game*

The findings are in accordance with the opinion Nurjanah & Mukarromah (2021) which explains that learning media can be used to stimulate students' thoughts, feelings, attention, and interest in learning. In this study, *Science Adventure Board Game* It not only serves as a tool for delivering material, but also as a means that encourages students to interact, discuss, answer questions, and solve challenges.

Usage *Board games* also in accordance with the characteristics stated by the Darmo et al., (2022) , that *Board games* is a game that uses a board and various components that are played based on certain rules. In learning, these characteristics provide a more interesting learning experience because students are directly involved in the game activities. This is also in line with the opinion Astiti & Rosyada (2025) that *Board games* It allows students to be directly involved in the learning process through play activities, discussions, answering questions, and solving challenges. This condition can be seen in this study when students not only receive material from the teacher, but also gain the opportunity to practice knowledge through game activities.

The application of CRT contributes to creating learning that is closer to students' lives. In this study, IPAS material is associated with experiences, environments, and cultural contexts known by students. The results of observations show that students' ability to relate material to the environment and cultural context obtained a score of 2 in Cycle I and increased to a score of 3 in Cycle II. This improvement shows that students' ability to relate material to the context of their lives begins to develop after learning improvements.

The application is in accordance with the opinion Willenda et al., (2024) that CRT allows for better interaction among students. In addition, Lasmiasih et al., (2025) explains that CRT can be a foundation for increasing the engagement, empowerment, and achievement of diverse student potential. The application of CRT in this study allows students to connect the knowledge they have just learned with the knowledge and experience they already have. The application of CRT is also in accordance with the characteristics stated Safitri et al., (2024), especially in the recognition of students' living conditions, cognitive processes,

communication styles, and the application of knowledge to encourage critical, innovative, and adaptive thinking.

The improvement of learning outcomes and student activities can be understood through the integration of PBL, CRT, and *Science Adventure Board Game* media. PBL provides a learning structure through problems that students must solve, CRT provides the context of students' experiences and culture, while *Science Adventure Board Game* facilitates learning activities through interactive activities. Through PBL, students are directed to identify problems, discuss, find solutions, and convey the results of thoughts. The integration of CRT makes problems closer to students' lives, while *Science Adventure Board Game media* makes the problem-solving process more interesting through question cards, challenge cards, bonus cards, and cultural mission cards.

The improvement in learning outcomes in this study is also related to changes in students' interests and motivation during the learning process. In the initial condition, conventional learning makes some students less active and less focused. After using game media accompanied by problems and challenges, students show higher involvement. This can be attributed to internal factors that affect learning outcomes, especially interest and motivation. Arikunto (2021) Explaining that interest is one of the important aspects that affect a person in doing an activity. The use of games provides a different learning experience so that students are more interested in learning.

In addition to internal factors, the condition of the learning environment is also a consideration in the implementation of actions. Media *Science Adventure Board Game* does not depend on LCD or technological devices so that it can be used directly in classroom learning activities. This is one of the alternatives in creating active learning despite the limitations of facilities and infrastructure. Learning media can help overcome ambiguities in the delivery of material and support the creation of a more effective learning process (Nurjanah & Mukarromah, 2021).

The results of this study are in accordance with previous research. Research Naimah et al., (2019) shows that the media *Science Adventure* can be used in learning and help improve students' skills. These results support the use of concepts *Science Adventure* as a learning medium in this study. Furthermore, the research Audina et al., (2026) indicates that the use of *Board games* in social studies learning can improve student learning outcomes after being given actions in each cycle. Research Amanda et al., (2024) also shows that the application of CRT can improve the learning outcomes of IPAS. In addition, Hidayatullah & Gunansyah (2026) shows that the media *Board games* can be declared feasible and effective in supporting the improvement of learning outcomes of elementary school students. Research Astiti & Rosyada (2025) also indicates that the use of *Board games* can increase the activeness and involvement of students in social studies learning so as to create more interesting and interactive learning.

Although it is in accordance with previous research, this study has added value in the integration of the CRT approach, PBL model, and *Science Adventure Board Game* media in one learning action. The integration allows learning not only to be oriented to the mastery of the material, but also provides space for students to connect the material with cultural experiences and contexts, solve problems, work together, and learn through game activities.

Overall, the results showed that the success indicators had been achieved in Cycle II. Classical completeness increased from 32% in the Pre-Cycle to 71% in Cycle I and 89% in Cycle II. The average score also increased from 70.54 to 80.36 and then 90.18. Student activity increased from 70% to 93%, while teacher/researcher activity increased from 70% to 98%. With the achievement of classical completeness of 89% and student activity of 93%, the actions in Cycle II were declared successful. These results show that the application of the *Science Adventure Board Game media-based Culturally Responsive Teaching (CRT) approach* can be

an alternative learning to improve the learning outcomes of IPAS students in grade IV of SD N Muktiharjo Kidul 02. Further research can develop the application of media and these approaches to different materials, class characteristics, or cultural contexts to see the consistency of the results obtained.

4. Conclusion

The application of *the Culturally Responsive Teaching* (CRT) approach based on *Science Adventure Board Game* media with *the Problem Based Learning* (PBL) model can improve the learning outcomes of IPAS students in grade IV of SD N Muktiharjo Kidul 02. This improvement shows that learning that connects material with students' cultural experiences and contexts, accompanied by problem-solving activities and games, is able to create a more meaningful learning experience and encourage student involvement in understanding the material.

The success of actions is not only shown through improved learning outcomes, but also through increased student activities during learning. This shows that the integration of CRT, PBL, and *Science Adventure Board Game* can be an alternative to IPAS learning that is contextual, interactive, and in accordance with the characteristics of elementary school students. The media also has the advantage of being able to be used without relying on technological devices, so it has the potential to be applied to learning conditions with limited facilities and infrastructure.

Further research can develop *Science Adventure Board Games* with more diverse science and cultural contexts and test its application to different class and level characteristics. This development can be carried out to determine the consistency of the effectiveness of the integration of CRT, PBL, and game media in supporting contextual and student-centered learning.

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