

The Use of Role-Playing Learning Model to Improve Critical Thinking Skills in IPAS Learning at Fourth Grade Elementary School

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Abstract

The rapid transformation of the twenty-first century has brought significant changes to the demands placed on education systems worldwide. This study aims to improve fourth-grade students' critical thinking skills through the implementation of the role-playing learning model in IPAS learning at SDN Margorejo 1/403 Surabaya. The research employed a Classroom Action Research (CAR) design consisting of two stages: pre-cycle and Cycle I, following the procedures of planning, acting, observing, and reflecting. The subjects of the study were 25 fourth-grade students. Data were collected through observation, tests, and documentation, and analyzed using descriptive quantitative and qualitative techniques. The findings revealed a significant improvement in students' learning outcomes and critical thinking skills. In the pre-cycle, the average formative score was 81.32, while the summative score was 74.40, with only 60% of students achieving the minimum mastery criterion. After the implementation of the role-playing model, the average formative score increased to 91.88 and the summative score to 89.92, with 100% of students achieving mastery. The results indicate that role-playing fosters active participation, collaboration, and contextual understanding, which contribute to the development of critical thinking skills. Therefore, the role-playing learning model is effective in enhancing students' critical thinking in elementary IPAS learning.

Keywords

Role-Playing Learning Model; Critical Thinking Skills; IPAS Learning; Elementary Education; Classroom Action Research



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INTRODUCTION

The rapid transformation of the twenty-first century has brought significant changes to the demands placed on education systems worldwide. In an era characterized by the proliferation of information, technological advancement, and increasingly complex socio-environmental challenges, the ability to think critically has become an essential competency for learners (Alwi et al., 2026). Critical thinking is not merely the capacity to recall information but involves higher-order cognitive processes such as analysis, evaluation, interpretation, and decision-making. International assessments, particularly those conducted by the Programme for International Student Assessment, consistently reveal that students across many countries still struggle to demonstrate proficiency in tasks requiring critical reasoning and problem-solving (Manurung & Pappachan, 2025). These findings indicate that conventional instructional practices, which often emphasize rote memorization and teacher-centered approaches, remain prevalent and insufficient in cultivating higher-order thinking skills.

At the global level, educational reforms have increasingly emphasized the need to shift from passive learning environments to more interactive and student-centered pedagogies. Approaches such as inquiry-based learning, problem-based learning, and experiential learning have gained prominence due to their potential to engage learners actively in the construction of knowledge (Aristanti & Fatayan, 2024). Among these approaches, the role-playing learning model has emerged as a promising strategy to foster critical thinking. Role-playing allows students to simulate real-life scenarios, assume different perspectives, and engage in meaningful dialogue, thereby encouraging reflective and analytical thinking (Martir et al., 2024). By immersing learners in contextualized situations, this model facilitates deeper cognitive engagement and enhances the ability to connect theoretical knowledge with practical applications. Despite its theoretical advantages, the implementation of role-playing in elementary education remains inconsistent, particularly in contexts where traditional pedagogical practices are deeply entrenched.

In the national context, the challenges associated with developing students' critical thinking skills are equally evident in Indonesia. The results of international assessments indicate that Indonesian students' performance in domains requiring higher-order thinking, such as reasoning and problem-solving, is still below the global average (Sopandi et al., 2024). This condition is further corroborated by national evaluations and classroom-based observations, which suggest that many students experience difficulties in analyzing problems, formulating arguments, and drawing logical conclusions (Hasanah et al., 2025). One contributing factor is the persistence of teacher-centered instructional methods, where learning activities are dominated by lectures and textbook-based exercises, leaving limited opportunities for students to actively engage in critical inquiry.

The introduction of the Merdeka Curriculum represents a significant effort by the Indonesian government to address these challenges. This curriculum emphasizes the development of competencies, including critical thinking, creativity, collaboration, and communication (Wulandari et al., 2023). Within this framework, the subject of Ilmu Pengetahuan

Alam dan Sosial (IPAS) is designed to integrate scientific and social perspectives, providing students with opportunities to explore real-world phenomena in a holistic manner (Savitri et al., 2025). However, the successful implementation of this curriculum largely depends on the instructional strategies employed by teachers. In many cases, the integration of innovative learning models into classroom practice remains limited due to constraints such as insufficient training, lack of resources, and resistance to pedagogical change.

Empirical data from classroom observations in elementary schools further highlight the gap between curricular expectations and actual teaching practices. Preliminary observations conducted at SDN Margorejo 1/403 Surabaya indicate that students' participation in IPAS learning activities tends to be passive. Classroom interactions are often dominated by the teacher, with students primarily engaged in listening, note-taking, and completing routine exercises. As a result, opportunities for students to develop critical thinking skills through discussion, problem-solving, and reflective activities are minimal. Additionally, students often exhibit difficulties in expressing their opinions, analyzing information, and making reasoned judgments when confronted with contextual problems. These findings suggest that there is a pressing need to implement instructional models that actively engage students in the learning process and promote higher-order thinking.

A growing body of research has explored the effectiveness of the role-playing learning model in enhancing critical thinking skills. For instance, Wulandari et al., (2023) emphasized that role-playing is an experiential learning strategy that enables students to explore complex social situations and develop problem-solving skills through active participation. Similarly, a study by Khoiriyah et al., (2023) demonstrated that role-playing can increase students' engagement and improve their ability to analyze learning materials. Furthermore, research conducted by Attalina & Widiyono, (2025) found that interactive learning models, including role-playing, contribute significantly to the development of critical and creative thinking skills in elementary education.

More recent empirical studies also support these findings. A quasi-experimental study by Sitti, (2020) reported that students who participated in role-playing activities showed a significant improvement in their critical thinking abilities compared to those who were taught using conventional methods. Another study by Savitri et al., (2025) highlighted that cooperative and interactive learning strategies, including role-playing, enhance students' communication skills and foster deeper understanding of subject matter. Despite these positive outcomes, most existing studies focus on general subjects or secondary education levels, with limited attention given to the implementation of role-playing in integrated subjects such as IPAS at the elementary level.

While previous studies have established the effectiveness of role-playing in enhancing critical thinking, there is still a lack of empirical evidence regarding its application in IPAS learning within the context of elementary schools, particularly in urban public schools such as SDN Margorejo 1/403 Surabaya. Moreover, existing research often emphasizes quantitative outcomes without providing in-depth insights into the learning processes that occur during role-playing activities. This limitation underscores the need for further investigation into how role-

playing can be effectively integrated into IPAS learning to foster critical thinking skills among fourth-grade students.

The present study offers a state-of-the-art contribution by examining the use of the role-playing learning model in a specific and contextualized educational setting. Unlike previous studies that adopt a generalized approach, this research focuses on the integration of role-playing within the IPAS curriculum, taking into account the unique characteristics of elementary school learners. By emphasizing active participation, contextual learning, and reflective thinking, this study seeks to provide a comprehensive understanding of how role-playing can be utilized to enhance critical thinking skills in a meaningful and sustainable manner.

Furthermore, this study adopts a pedagogical perspective that aligns with contemporary educational paradigms, which emphasize learner autonomy and experiential learning. The integration of role-playing into IPAS learning is expected to create a more dynamic and interactive classroom environment, where students are encouraged to explore ideas, engage in dialogue, and reflect on their learning experiences. This approach not only supports the development of cognitive skills but also fosters social and emotional competencies, which are essential for holistic education.

Based on the aforementioned considerations, the objective of this study is to investigate the effectiveness of the role-playing learning model in improving critical thinking skills among fourth-grade students in IPAS learning at SDN Margorejo 1/403 Surabaya. Specifically, this research aims to (1) analyze the implementation of role-playing in IPAS learning, (2) examine the extent to which this model enhances students' critical thinking skills, and (3) identify the challenges and opportunities associated with its application in the classroom context. Through this investigation, the study is expected to contribute to the development of innovative instructional practices that support the realization of competency-based education in Indonesia.

The need to develop students' critical thinking skills is a global and national priority that requires innovative and effective instructional strategies. The role-playing learning model offers a promising approach to address this need by engaging students in active and meaningful learning experiences. However, the limited implementation of this model in elementary IPAS learning highlights the importance of further research in this area. By exploring the use of role-playing in a specific educational context, this study seeks to bridge the existing gap and provide valuable insights for educators, policymakers, and researchers in their efforts to improve the quality of education.

METHODS

This study employed a Classroom Action Research (CAR) design to improve students' critical thinking skills through the implementation of the role-playing learning model in IPAS learning. Classroom Action Research was selected because it provides a systematic and reflective approach that enables teachers to identify classroom problems, implement interventions, and evaluate their impact in a cyclical process (Poonputta, 2021). This approach is particularly relevant

to the present study, as it focuses on improving instructional practices and student learning outcomes in a real classroom setting.

The research was conducted at SDN Margorejo 1/403 Surabaya, involving fourth-grade students as the research subjects. The class consisted of approximately 28–32 students with diverse academic abilities and learning characteristics. The selection of this class was based on preliminary observations indicating that students' critical thinking skills in IPAS learning were still relatively low, as reflected in their limited ability to analyze problems, express opinions, and draw logical conclusions during classroom activities.

The study followed the CAR model proposed by Kemmis Stephen and Robin McTaggart, which consists of four main stages: planning, acting, observing, and reflecting. These stages were implemented in two cycles, with each cycle consisting of two meetings. If the expected outcomes were not achieved in the second cycle, further cycles could be conducted; however, this study was designed to be completed within two cycles based on feasibility considerations.

In the planning stage, the researcher prepared all instructional materials and research instruments. This included developing lesson plans based on the role-playing learning model, designing learning scenarios aligned with the IPAS curriculum, and preparing teaching aids to support students' engagement. In addition, the researcher developed instruments for data collection, such as observation sheets, critical thinking assessment rubrics, field notes, and documentation tools. The indicators of critical thinking skills were adapted from established frameworks, including the ability to identify problems, analyze information, evaluate arguments, and make reasoned conclusions.

The acting stage involved the implementation of the role-playing learning model in the classroom. During this stage, students were engaged in structured role-playing activities related to IPAS topics. The learning process began with the introduction of contextual problems, followed by the assignment of roles to students. Students then performed role-playing scenarios, discussed the issues presented, and reflected on their experiences. The teacher acted as a facilitator, guiding discussions and encouraging students to think critically and express their ideas.

The observing stage was carried out simultaneously with the acting stage. The researcher, assisted by a collaborator (such as a fellow teacher), systematically observed students' participation, interaction, and demonstration of critical thinking skills during the learning process. Data were collected using observation sheets and field notes to capture both quantitative and qualitative aspects of student behavior. In addition, students' performance in role-playing activities and their responses to evaluation tasks were documented to assess the development of critical thinking skills.

The reflecting stage involved analyzing and evaluating the results of each cycle to determine the effectiveness of the intervention. The researcher reviewed the data collected during the observing stage, identified strengths and weaknesses in the implementation of the role-playing model, and made necessary adjustments for the subsequent cycle. Reflection was

conducted collaboratively with the observer to ensure objectivity and to generate constructive feedback for improving the learning process.

Data collection techniques in this study included observation, tests, and documentation. Observation was used to assess students' engagement and critical thinking behaviors during the learning process. Tests were administered at the end of each cycle to measure students' critical thinking skills quantitatively. The test items were designed to evaluate higher-order thinking skills, such as analysis, evaluation, and problem-solving. Documentation, including photographs, lesson plans, and students' work, was used to support and validate the findings.

The data analysis techniques consisted of both qualitative and quantitative methods. Qualitative data from observations and field notes were analyzed using descriptive analysis, involving data reduction, data display, and conclusion drawing. Quantitative data from test results were analyzed using descriptive statistics to calculate the mean scores and the percentage of students achieving the predetermined criteria of success. The criteria for success in this study were defined as (1) an improvement in the average score of students' critical thinking skills and (2) at least 75% of students achieving the minimum mastery criterion (KKM) set by the school.

To ensure the validity and reliability of the data, the study employed triangulation techniques, including data triangulation and investigator triangulation. Data triangulation was achieved by comparing data obtained from different sources, such as observations, tests, and documentation. Investigator triangulation involved collaboration with an observer to cross-check the accuracy of the observations and interpretations.

Through this Classroom Action Research design, the study aimed to provide a systematic and reflective framework for improving the quality of IPAS learning. The iterative nature of CAR allowed the researcher to continuously refine the implementation of the role-playing learning model, thereby enhancing students' critical thinking skills in a meaningful and sustainable manner.

FINDINGS AND DISCUSSION

Findings

This chapter presents the findings of the Classroom Action Research (CAR) conducted at SDN Margorejo 1/403 Surabaya. The findings are organized systematically based on the stages of the research, namely the pre-cycle (baseline condition) and the action cycle after the implementation of the role-playing learning model. The data are presented in both descriptive and quantitative forms to provide a comprehensive understanding of the improvement in students' critical thinking skills in IPAS learning.

Pre-Cycle Findings (Baseline Condition)

The pre-cycle phase was conducted to identify the initial condition of students' critical thinking skills before the implementation of the role-playing learning model. The data were obtained from formative (group-based) and summative (individual-based) assessments on the topic "Recognizing Currency Values and Their Functions."

Based on the collected data, students' performance in the pre-cycle was still relatively low, particularly in the summative assessment, which reflects individual critical thinking ability. The formative scores ranged from 75 to 88, indicating that students could perform relatively well in collaborative settings. However, the summative scores varied widely, ranging from 30 to 90, showing significant disparities in individual understanding.

This condition indicates that while group learning supported students in completing tasks, many students struggled to independently analyze problems, interpret information, and draw conclusions key components of critical thinking.

To provide a clearer picture, the quantitative data of the pre-cycle are summarized in the following table:

Table 1 Students' Learning Outcomes in Pre-Cycle

Indicator	Formative (Group)	Summative (Individual)
Highest Score	88	90
Lowest Score	75	30
Mean Score	81.32	74.40
Students ≥ KKM (75)	25 (100%)	15 (60%)
Students < KKM	0 (0%)	10 (40%)

The table 1 above shows that although all students achieved the minimum mastery criterion (KKM) in the formative assessment, only 60% of students met the KKM in the summative assessment. This indicates that students' critical thinking skills were not yet fully developed at the individual level. A total of 10 students (40%) failed to achieve the expected competency standard.

Classroom observations further revealed that the learning process was still dominated by teacher-centered instruction. Students tended to be passive, with limited opportunities to engage in discussion, ask questions, or express their opinions. Consequently, the development of critical thinking skills such as analysis, evaluation, and reasoning was not optimal.

Findings After the Implementation of Role-Playing Learning Model (Cycle I)

The implementation of the role-playing learning model was carried out in Cycle I through structured learning activities. Students were grouped and asked to design role-playing scenarios related to the topic of currency values and their functions. These activities required students to analyze real-life situations, construct arguments, and present their ideas through role-play performances.

During the learning process, students demonstrated higher levels of engagement and participation. They actively collaborated with their peers, discussed problem scenarios, and performed role-playing activities confidently. More importantly, students were encouraged to

think critically by identifying problems, analyzing situations, and making decisions within their roles.

The improvement in students' learning outcomes after the implementation of the role-playing model is presented in the following table:

Table 2 Students' Learning Outcomes After Role-Playing Implementation

Indicator	Formative (Group)	Summative (Individual)
Highest Score	95	100
Lowest Score	90	78
Mean Score	91.88	89.92
Students \geq KKM (75)	25 (100%)	25 (100%)
Students $<$ KKM	0 (0%)	0 (0%)

The data clearly indicate a significant improvement in both formative and summative assessments. The mean formative score increased to 91.88, while the mean summative score rose to 89.92. Notably, all students (100%) successfully achieved the minimum mastery criterion (KKM), indicating that the learning objectives were fully accomplished.

Furthermore, the lowest summative score increased significantly from 30 in the pre-cycle to 78 after the intervention, demonstrating that even lower-performing students experienced meaningful improvement.

Improvement of Students' Critical Thinking Skills

To highlight the extent of improvement, a comparative analysis between the pre-cycle and Cycle I results is presented below:

Table 3 Improvement of Students' Critical Thinking Skills

Indicator	Pre-Cycle	Cycle I	Improvement
Mean Formative Score	81.32	91.88	+10.56
Mean Summative Score	74.40	89.92	+15.52
Mastery (Summative)	60%	100%	+40%

The table 3 shows a substantial improvement in students' critical thinking skills after the implementation of the role-playing learning model. The increase in the mean summative score by 15.52 points indicates a strong enhancement in students' ability to think critically at an individual level. Additionally, the mastery level improved from 60% to 100%, reflecting that all students were able to meet the expected learning standards.

This improvement can be attributed to the characteristics of the role-playing learning model, which emphasizes active participation, experiential learning, and contextual problem-solving. Through role-playing activities, students were not only engaged cognitively but also

socially and emotionally, enabling them to construct deeper understanding and develop critical thinking skills more effectively.

Discussion

This chapter discusses the findings of the study by linking them with relevant theories and empirical research within the last five years. The discussion focuses on three main aspects: (1) the improvement of students' critical thinking skills through the role-playing learning model, (2) the pedagogical mechanisms underlying this improvement, and (3) the contribution of this study to the existing body of knowledge (state of the art).

Improvement of Critical Thinking Skills through Role-Playing

The findings of this study demonstrate a significant improvement in students' critical thinking skills after the implementation of the role-playing learning model in IPAS learning. This improvement is evident from the increase in both formative and summative scores, as well as the achievement of 100% mastery learning. These results confirm that role-playing is an effective instructional strategy for enhancing higher-order thinking skills in elementary education.

This finding is consistent with recent research conducted by Amalia & Damanik, (2025), which revealed that the use of role-playing significantly improved students' critical thinking skills, with scores increasing substantially in the experimental group compared to the control group. The study emphasized that role-playing enables students to actively engage in learning, thereby promoting deeper understanding and analytical thinking.

Similarly, that role-playing activities provide opportunities for students to develop critical thinking, creativity, and communication skills through interactive and experiential learning processes. This aligns with the findings of the present study, where students became more active, confident, and capable of expressing their ideas during learning activities.

Furthermore, a study by (Putu Eka Suarmika et al., 2024) found that digital role-playing environments significantly improved students' critical thinking performance and learning motivation. Although the context differs (digital vs. classroom-based role-playing), both studies highlight the same pedagogical principle: active engagement in simulated scenarios enhances cognitive processing and critical reasoning.

Thus, the improvement observed in this study is not an isolated phenomenon but part of a broader trend in contemporary educational research, which emphasizes the effectiveness of interactive and student-centered learning models in developing critical thinking skills.

Pedagogical Mechanisms of Role-Playing in Enhancing Critical Thinking

The effectiveness of the role-playing learning model in this study can be explained through several pedagogical mechanisms.

First, role-playing provides a contextual and experiential learning environment. Students are required to assume roles, analyze situations, and make decisions based on given scenarios. This process stimulates higher-order thinking skills, including analysis, evaluation,

and synthesis. The findings of this study showed that students were able to better understand the concept of currency and its functions by acting out real-life situations, which made the learning process more meaningful.

This mechanism is supported by recent research on multi-perspective role-playing, which indicates that engaging students in different roles enhances their ability to analyze problems from multiple viewpoints and develop critical thinking behaviors. The study highlights that role-playing encourages students to reflect on their reasoning processes, thereby strengthening their cognitive skills.

Second, role-playing promotes active participation and collaboration. In this study, students worked in groups to design and perform role-play scenarios, which required them to communicate, negotiate, and share ideas. This collaborative process fosters critical thinking by exposing students to diverse perspectives and encouraging them to evaluate different arguments.

This finding is in line with research by (Hariyana et al., 2024), which demonstrated that integrating role-playing with socioscientific issues significantly improves students' ability to analyze information and draw evidence-based conclusions. The study emphasizes that interaction and discussion are key elements in developing critical thinking skills.

Third, role-playing increases student motivation and engagement. The findings of this study showed that students were more enthusiastic and actively involved in learning activities during the implementation of role-playing. This increased engagement contributes to better learning outcomes and deeper cognitive processing.

This is supported by a literature review conducted by (Untari, 2025), which found that interactive learning approaches, including gamification and role-playing, significantly enhance students' critical thinking skills by increasing motivation and meaningful engagement in learning. The study also highlights that such approaches support not only cognitive development but also affective and social aspects of learning.

In contrast, traditional teacher-centered approaches tend to limit students' opportunities to engage in critical thinking. This is evident in the pre-cycle findings of this study, where students showed low performance in summative assessments and limited participation in classroom activities. Similar findings were reported by (Mazidah & Retnosari, 2025), who found that students taught using conventional methods exhibited lower critical thinking skills compared to those taught using problem-based learning.

Comparison with Other Innovative Learning Models

Although role-playing has proven effective in this study, it is important to compare its effectiveness with other innovative learning models to better understand its relative strengths.

Problem-Based Learning (PBL), for example, has been widely recognized as an effective approach for developing critical thinking skills. Research by (Ulfa & Noor, 2025) showed that PBL significantly improves students' critical thinking compared to expository learning.

Similarly, (Wijnia et al., 2024) found that PBL enhances students' critical thinking and intrapersonal intelligence.

However, while PBL focuses on problem-solving processes, role-playing adds a social and experiential dimension that allows students to directly experience real-life situations. This makes role-playing particularly suitable for elementary students, who are still in the concrete operational stage and benefit from hands-on and interactive learning experiences.

In addition, recent studies on interactive media, such as web-based learning and educational games, also demonstrate positive effects on critical thinking skills. For instance, Saputra et al. (2025) found that web-based interactive media significantly improves students' critical thinking abilities compared to traditional methods. Likewise, Ginting et al. (2025) reported that game-based learning increases critical thinking scores significantly.

Compared to these approaches, role-playing offers a more direct and accessible strategy, as it does not require advanced technology and can be easily implemented in various classroom settings. This makes it a practical and cost-effective alternative for teachers. This study contributes to the existing literature by addressing several research gaps.

First, while previous studies have examined the effectiveness of role-playing in improving critical thinking, most of them focus on science subjects or higher education levels. For example, Azhari and Anas (2024) focused on the circulatory system in elementary science, while other studies examined secondary education contexts.

In contrast, this study specifically investigates the use of role-playing in IPAS learning at the fourth-grade elementary level, particularly on the topic of currency values and their functions. This provides new insights into the applicability of role-playing in integrated subjects that combine social and scientific concepts.

Second, this study adopts a Classroom Action Research (CAR) approach, which emphasizes iterative improvement and reflective practice. Unlike experimental studies that focus solely on outcomes, this approach provides a more comprehensive understanding of the learning process and the factors influencing students' critical thinking development.

Third, this study highlights the integration of role-playing with concrete learning media, which enhances students' understanding of abstract concepts. This combination represents a novel contribution to the field, as it demonstrates how different instructional strategies can be synergistically applied to achieve better learning outcomes.

The findings of this study have several important implications for educational practice.

First, teachers should consider adopting role-playing as an alternative instructional strategy to promote critical thinking in IPAS learning. The model encourages active participation, collaboration, and contextual understanding, which are essential for developing higher-order thinking skills.

Second, the integration of role-playing with real-life contexts and concrete media can enhance students' learning experiences and make abstract concepts more accessible. This is particularly important in elementary education, where students benefit from hands-on and experiential learning.

Third, educational institutions should provide support and training for teachers to implement innovative learning models effectively. This includes developing instructional materials, designing engaging learning scenarios, and fostering a supportive learning environment.

CONCLUSION

This study concludes that the implementation of the role-playing learning model significantly improves fourth-grade students' critical thinking skills in IPAS learning at SDN Margorejo 1/403 Surabaya. The findings indicate a substantial increase in both formative and summative learning outcomes after the intervention. In the pre-cycle phase, students' performance, particularly in individual (summative) assessments, was relatively low, reflecting limited ability to analyze, evaluate, and draw conclusions independently. However, after the application of the role-playing model, all students successfully achieved the minimum mastery criterion, demonstrating a notable enhancement in their critical thinking abilities.

The improvement can be attributed to the characteristics of role-playing, which promote active participation, experiential learning, and collaborative problem-solving. Through structured scenarios, students were encouraged to engage in meaningful discussions, assume different perspectives, and make reasoned decisions. This process not only strengthened their cognitive skills but also increased their motivation and confidence in learning.

Therefore, the role-playing learning model can be considered an effective, engaging, and practical instructional strategy to foster critical thinking skills in elementary IPAS learning, particularly within student-centered learning environments.

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