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Research Article

Implementing PAIKEM Gembrot to Enhance Literacy, Numeracy, and Creativity in Elementary IPAS Learning

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Abstract: This study investigates the implementation of the PAIKEM Gembrot model to enhance the literacy, numeracy, and creativity of fifth-grade students at UPT SDN Unjuruiya No. 45 in the Selayar Islands. Using a two-cycle classroom action research design—comprising planning, action, observation, and reflection—data were collected through tests, observations, and documentation to obtain comprehensive information on both learning processes and outcomes. In Cycle I, only 40% of students met the mastery criteria, largely due to their initial adjustment to the new learning approach and limited engagement in collaborative activities. After refining instructional strategies in Cycle II, including the use of more varied learning activities, concrete and contextual learning media, structured group discussions, and closer teacher guidance, student learning outcomes improved dramatically, with 100% of students achieving mastery. In addition, students showed increased participation, confidence, and motivation during classroom interactions. These results demonstrate that PAIKEM Gembrot effectively strengthens students' abilities to comprehend information, apply numerical reasoning, and express creativity through active and meaningful learning experiences. Therefore, the PAIKEM Gembrot model serves as a promising and contextually relevant alternative for improving elementary science learning, particularly in island-based schools with limited educational resources.

Keywords: Creativity; Literacy; Numeracy; PAIKEM Gembrot; Science Learning

1. Introduction

Improving the quality of elementary education has become a global priority as literacy, numeracy, and creativity are essential competencies for navigating the complexities of the twenty-first century [1], [2]. International reports and national educational policies consistently emphasize that foundational skills strongly influence students' readiness to adapt to rapid social, technological, and economic changes. In Indonesia, strengthening literacy and numeracy has become a central agenda of the Merdeka Curriculum, which promotes active learning and the development of Pancasila student profiles. Despite these initiatives, many elementary schools continue to face challenges in implementing instructional practices that foster deep comprehension, critical thinking, and creativity in everyday learning [3].

These challenges are evident in the learning conditions at UPT SDN Unjuruiya No. 45 in the Selayar Islands. Preliminary observations conducted in June 2025 revealed that fifth-grade students exhibited low levels of literacy, numeracy, and creativity. Discussions with the classroom teacher indicated that many students struggled to comprehend reading passages, had difficulty solving contextual numeracy problems, and rarely expressed creative ideas during lessons. Results from the IPAS daily assessment showed that only 4 out of 13 students met the minimum learning mastery criteria of 70, while the remaining 9 students scored between 60 and 68, leading to a class average of 68. These findings were consistent with the semester report data, which indicated that 7 students were categorized as "Needs Guidance" in literacy, 8 in numeracy, and 9 were rated as "Less Developed" in creativity. These empirical conditions highlight fundamental problems in the learning process, particularly in students' ability to interpret texts, apply numerical concepts to real-life contexts, and generate creative ideas.

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The low achievement levels are attributed to the conventional instructional methods predominantly used in the classroom. Teachers often rely on lectures and repetitive exercises, resulting in monotonous learning experiences that fail to encourage active engagement. This limits students' opportunities to develop literacy, numeracy, and creativity optimally. Yet literacy in IPAS learning entails not only reading and writing skills but also interpreting and evaluating information [4]. Similarly, numeracy, according to Rahmawati, involves the practical use of mathematical concepts in daily life [5]. Creativity, as described by Haris, requires opportunities for exploration, experimentation, and the generation of diverse solutions [6]. However, the current learning practices restrict these opportunities, with students memorizing information rather than understanding concepts, passively waiting for teacher instructions, and seldom being involved in activities that stimulate critical and creative thinking.

These conditions demonstrate the need for a more participatory learning model that activates student engagement. One promising approach is PAIKEM Gembrot, which emphasizes active, innovative, creative, effective, enjoyable, and literacy-oriented learning. Sari and Yuliana highlight that PAIKEM Gembrot creates meaningful and enjoyable learning experiences where students are not merely recipients of information but active participants [7]. This approach facilitates learning activities that encourage reading, questioning, discussing, critical thinking, and problem-solving both independently and collaboratively. According to Hasanah , the implementation of PAIKEM Gembrot significantly enhances students' interest and critical thinking skills, indicating its strong potential to improve literacy, numeracy, and creativity in IPAS learning [8].

The relevance of PAIKEM Gembrot is further reinforced by the Merdeka Curriculum, which promotes differentiated instruction, literacy-numeracy strengthening, and the development of Pancasila student profiles. Putri and Kurniawan argue that the model offers substantial opportunities to improve these competencies through contextual, varied, and interactive learning activities [9]. Reading prompts, group discussions, project-based problem-solving, and creative assignments provide students with opportunities to express ideas authentically. This aligns with Salsabila, who found that PAIKEM Gembrot enhances students' ability to articulate opinions, ask questions, collaborate, and connect learning materials with real-life experiences [10]. Thus, the model provides a comprehensive and appropriate framework for developing foundational student competencies.

Although previous studies have demonstrated the effectiveness of PAIKEM Gembrot in improving interest, critical thinking, and various cognitive skills, research specifically focusing on its impact on literacy, numeracy, and creativity in elementary IPAS learning remains limited. Most existing studies address general academic achievement rather than these three priority competencies emphasized in the Merdeka Curriculum. Additionally, research rarely focuses on geographically unique areas such as island-based schools, where access to educational resources may be more limited. This indicates a clear research gap concerning the implementation of PAIKEM Gembrot in strengthening literacy, numeracy, and creativity in elementary IPAS learning, especially in remote regions such as the Selayar Islands.

The urgency of this study is further underscored by the 2023 National Assessment results, which showed that many Indonesian elementary students have not yet achieved minimum literacy and numeracy competencies. This mirrors the local conditions at UPT SDN Unjuruiya No. 45, where students consistently perform at low levels. Teachers and school administrators have expressed the need for a more interactive and engaging learning model that can enhance students' holistic development. Within this context, the implementation of PAIKEM Gembrot is expected to provide a practical and effective solution. Based on these considerations, this study aims to analyze and describe the implementation of the PAIKEM Gembrot learning model to enhance literacy, numeracy, and creativity among fifth-grade students in IPAS learning at UPT SDN Unjuruiya No. 45 in the Selayar Islands. The study is expected to contribute theoretically to the development of active and enjoyable learning models and provide practical insights for teachers, schools, and policymakers in improving instructional quality at the elementary level.

2. Literature Review

Literacy in IPAS Learning

Literacy in IPAS learning refers to the ability to access, understand, interpret, and use information critically to solve real-life problems. Kusnandar, Suyono, Lestari, and Putri emphasize that literacy is not limited to reading and writing skills but also encompasses critical, analytical, and reflective thinking [4], [11], [12], [13], [14]. In IPAS learning, literacy serves as

a bridge for students to understand natural and social phenomena through engagement with texts, visuals, data, and environmental contexts. These scholars consistently highlight that literacy development depends heavily on active and meaningful learning, where activities such as reading, discussing, and evaluating information are integrated with real-world experiences that relate to students' lives.

The various types of literacy in IPAS—such as text literacy, visual literacy, environmental literacy, and data literacy (Lestari)—show that literacy is multidimensional and requires students to comprehend multiple forms of information representation. Literacy enhancement strategies proposed by Suyono, including creating a print-rich classroom environment, facilitating discussions, incorporating digital media, and providing constructive feedback, highlight the importance of supportive instructional practices. However, literacy development often remains suboptimal in IPAS because scientific texts, environmental observations, and critical thinking activities are not yet fully integrated. This gap indicates the need for more student-centered learning models such as PAIKEM Gembrot. Although existing studies recognize the importance of literacy in IPAS, most focus on general literacy without examining how innovative instructional models can strengthen practical literacy skills in IPAS at the elementary level.

Numeracy in IPAS Learning

Numeracy in IPAS is defined as the ability to apply number concepts, data interpretation, and mathematical reasoning to understand natural and social phenomena. Rahmawati, Suyatna, Lestari, and Putri assert that numeracy extends beyond basic calculations to include interpreting data, identifying patterns, and using numbers logically for decision-making. Numeracy supports students in connecting science–social learning with real-life contexts such as measurement, estimation, graph reading, data analysis, and understanding variable relationships [3].

Suyatna's typology of numeracy—contextual problem-solving, data representation, estimation, and mathematical pattern recognition—illustrates its interdisciplinary nature within IPAS. Strategies to improve numeracy, as proposed by Rahmawati through concrete manipulatives, contextual tasks, project-based learning, mathematical journaling, and games, highlight the practical and enjoyable dimensions of numeracy learning. Nevertheless, challenges remain, as many students still struggle with data interpretation and contextual numerical reasoning. Most numeracy studies remain conceptual and do not explore how innovative pedagogical models can address numeracy difficulties among elementary students. Empirical studies focusing on numeracy in resource-limited or geographically isolated schools are still limited, indicating the need for more applied research [5].

Creativity in IPAS Learning

Creativity in IPAS learning is defined as students' ability to generate original and meaningful ideas, solutions, or products based on their interpretation of natural and social phenomena. Rahman, Lestari, Putri, and Suyatna describe creativity as involving flexible thinking [15], contextual application of concepts, experimentation, and expressive problem-solving. Creativity appears in activities such as designing models, conducting experiments, developing environmental projects, and generating unique explanations of phenomena. Students who are creative demonstrate the ability to present their observations through various media and connect IPAS concepts holistically [16].

Rahman highlights creativity's role in supporting innovation, critical thinking, motivation, and student engagement through hands-on projects, experiments, and open-ended discussions. Putri adds that creativity strengthens collaboration when students work together to develop solutions for IPAS-related problems. Strategies such as project-based learning, exploration, hands-on activities, and open-ended challenges foster an environment where creativity can thrive [15]. While creativity is widely acknowledged in education, research on creativity specifically within elementary IPAS learning remains limited [17]. Traditional teaching practices often neglect creativity-oriented activities, indicating the need for instructional models that explicitly promote creative engagement.

IPAS Learning in Elementary Schools

IPAS integrates science (IPA) and social studies (IPS) to build students' holistic understanding of natural and social phenomena. Scholars such as Suryana , Ningsih , Tarlili , Putra, Prihatiningsih , and Zainuddin highlight that IPAS promotes scientific inquiry, environmental awareness, analytical thinking, and contextual understanding. IPAS is designed to cultivate

curiosity and guide students to observe, collect data, analyze, and draw logical conclusions from real-world events [18], [19], [20], [21], [22].

The goals of IPAS—developing holistic thinking, environmental awareness, inquiry skills, and 21st-century competencies Ningsih and align with Lestari's view that IPAS has educational, integrative, applicative, and character-building functions. However, IPAS instruction often remains theoretical and lacks exploratory activities, limiting the development of literacy, numeracy, and creativity. Most IPAS studies focus on conceptual integration or project activities but do not examine how instructional models can simultaneously enhance literacy, numeracy, and creativity in IPAS. Research in geographically unique contexts such as coastal or island schools is also scarce.

PAIKEM Gembrot Learning Model

PAIKEM Gembrot is an elaboration of the PAIKEM model enriched with elements of cheerfulness ("gembira") and depth ("berbobot"). Suhartono, Rahmawati, Widodo, Lestari , Fauzan, and Yuliana describe it as a holistic pedagogical model that balances physical, emotional, and cognitive engagement [7], [23], [24], [25], [26]. Its learning syntax—ice breaking, orientation, active learning through play and exploration, creative demonstration, reflection, and meaningful follow-up tasks Lestari creates a positive emotional climate and stimulates critical thinking.

Its pedagogical strengths include increased student engagement, creativity, collaboration, and emotional comfort (Suhartono, 2020). However, its limitations include the need for specialized teacher skills, significant variations in student readiness, subjective evaluation challenges, resistance to change, and scalability issues in large classes (Lestari, 2022). Most existing research on PAIKEM Gembrot focuses on learning motivation or critical thinking. Very few studies investigate its simultaneous impact on literacy, numeracy, and creativity—especially within IPAS learning in remote island schools. This gap calls for empirical examination of the model's integrative potential.

The action hypothesis of this study is: "*If teachers implement the PAIKEM Gembrot learning model in IPAS instruction, then the literacy, numeracy, and creativity of fifth-grade students at UPT SDN Unjuruiya No. 45 in the Selayar Islands will improve*."

3. Proposed Method

Research Design

This study employed Classroom Action Research (CAR) using the Kemmis and McTaggart cyclical model, which consists of planning, action, observation, and reflection phases. The CAR approach was selected because it enables teachers to systematically identify and solve instructional problems in real classroom contexts (Mulyasa, 2019; Sulistyorini, 2021). The research focused on improving students' literacy, numeracy, and creativity in IPAS learning through the implementation of the PAIKEM Gembrot instructional model. The study was conducted at UPT SDN Unjuruiya No. 45, Selayar Islands, during the first semester of the 2025/2026 academic year (July–October 2025).

Participants

The participants consisted of all fifth-grade students at UPT SDN Unjuruiya No. 45, totaling ten students—five boys and five girls. The school context served as the research site due to the documented low achievement levels in literacy, numeracy, and creativity. The classroom teacher acted as a collaborator during the implementation of instructional actions and reflections.

Data Collection Procedures

Data were collected across multiple CAR cycles by combining observations, interviews, tests, and documentation. Observations were conducted throughout the learning process to capture students' activity levels, participation, questioning behaviors, and engagement in literacy, numeracy, and creativity tasks. Interviews with the teacher and selected students were used to obtain deeper insights regarding perceptions of the learning process, challenges encountered, and responses to the PAIKEM Gembrot model. Literacy and numeracy tests were administered at the end of each cycle to quantitatively assess improvements in reading comprehension, data interpretation, and mathematical problem-solving related to IPAS content. Documentation—including photographs, students' written work, learning journals, and

administrative records—served as supporting evidence to validate and enrich observational and test data.

Instructional Procedures (Action Implementation)

The PAIKEM Gembrot model was implemented following the structured lesson flow developed during the planning phase. Each learning session began with introductory activities such as greetings, motivation, and connecting prior knowledge to students' daily experiences. During the main learning activities, students engaged in active, creative, effective, and enjoyable tasks such as environmental observations, small-group discussions, problem-based projects, poster development, data interpretation, educational games, and ice-breaking activities. The teacher facilitated questioning, guided discussions, and ensured optimal use of learning time. At the end of each session, students participated in reflective discussions to summarize key concepts, evaluate their learning experiences, and identify areas for improvement. This learning cycle was repeated in multiple rounds, with each subsequent cycle refined based on reflection results.

Instruments and Measures

Several instruments were developed to measure process and learning outcomes. Observation sheets were used to systematically record teacher and student activities aligned with literacy, numeracy, and creativity indicators. Literacy tests assessed students' ability to comprehend IPAS texts, extract important information, and produce written summaries. Numeracy tests measured students' skills in basic calculations, reading tables and graphs, and solving contextual mathematical problems. Creativity indicators included originality of ideas, project outputs, visual interpretations, and student participation in creative tasks. Field notes documented classroom events, unexpected behaviors, and contextual dynamics.

Data Analysis Techniques

Data analysis employed both qualitative and quantitative methods. Qualitative data from observations, interviews, and documentation were analyzed descriptively to identify patterns of student engagement, behavioral changes, and the effectiveness of the PAIKEM Gembrot model in enhancing literacy, numeracy, and creativity. Quantitative data from literacy and numeracy tests were analyzed using descriptive statistics.

4. Results and Discussion

Research Results

This study aimed to examine the improvement of fifth-grade students' literacy, numeracy, and creativity in IPAS learning through the implementation of the PAIKEM Gembrot model across two action research cycles. Data were collected from classroom observations, performance assessments, and cycle-end tests. The following results present comparative findings between Cycle I and Cycle II, showing how systematic pedagogical interventions led to measurable academic and behavioral improvements.

Literacy Achievement of Students

The literacy outcomes of Grade V students were assessed across two cycles to examine the effectiveness of the PAIKEM Gembrot instructional model in improving their comprehension, vocabulary usage, analysis, and attitudes toward learning. The results are presented in both tabular and graphical formats to provide a complete view of numerical progress. Table 1 summarizes the detailed literacy scores for Cycle I and Cycle II.

Table 1. Literacy Achievement in Cycle I and Cycle II.

Literacy Indicator	Cycle I (%)	Cycle II (%)
Comprehension	75%	85%
Knowledge	70%	95%
Vocabulary	65%	85%
Analysis	65%	95%
Attitude	75%	95%

Table 1 shows a consistent improvement across all literacy indicators. Comprehension increased by 10 percentage points, vocabulary by 20 points, and both analysis and attitude indicators rose significantly from 65% and 75% to 95% respectively. These numerical improvements indicate that the intervention not only enhanced students' understanding of economic concepts but also strengthened their analytical reasoning and learning attitudes. To illustrate these improvements more clearly, Figure 1 presents a visual comparison of literacy performance between Cycle I and Cycle II.

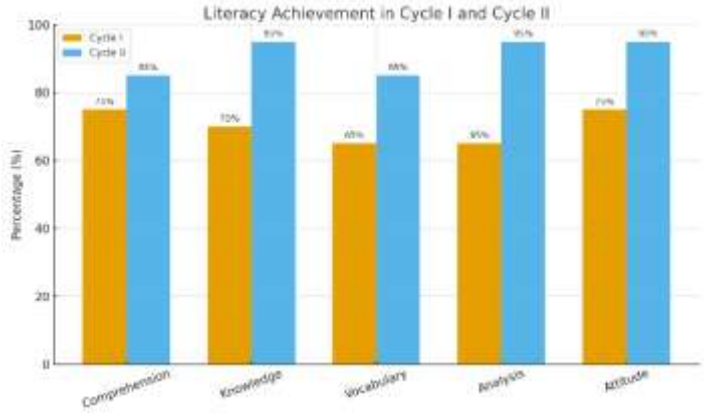

Figure 1. Literacy Skills Comparison Between Cycles.

Numeracy Skills of Students

Numeracy performance was evaluated to determine how effectively the PAIKEM Gembrot model improved students' abilities to understand numerical information, perform basic calculations, apply mathematical operations in real-life contexts, reason with economic data, and interpret tables or charts. As in the literacy assessment, both numerical data and visual representations are provided to strengthen the clarity and comprehensiveness of the findings. Table 2 displays the numeracy scores obtained in Cycle I and Cycle II.

Table 2. Numeracy Achievement in Cycle I and Cycle II.

Numeracy Indicator	Cycle I (%)	Cycle II (%)
Understanding	65%	85%
Calculation	60%	85%
Application	55%	80%
Reasoning	75%	85%
Interpretation	65%	90%

The data in Table 2 demonstrate substantial improvement in students' numeracy abilities from Cycle I to Cycle II. The most notable gains occurred in calculation skills (from 60% to 85%) and interpretation of data (from 65% to 90%), reflecting increased confidence in performing mathematical operations and analyzing economic information. Application indicators also rose from 55% to 80%, suggesting that students became more adept at solving real-world economic problems. To provide a clearer visualization of these improvements, Figure 2 presents a comparative bar chart showing the changes in numeracy performance across the two cycles.

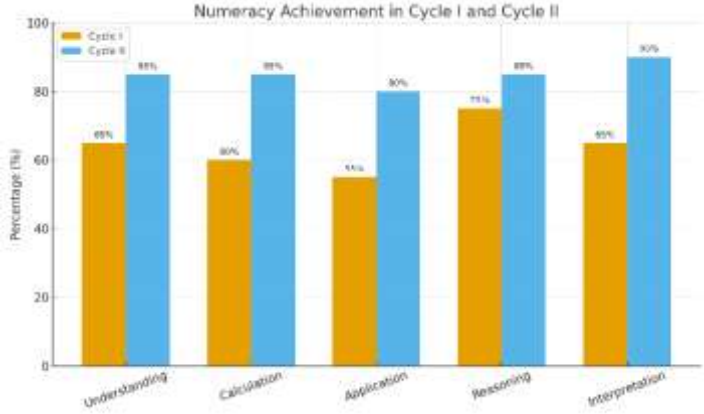

Figure 2. Numeracy Skills Comparison Between Cycles.

Students' Creativity Skills

Creativity skills were assessed to determine how effectively the PAIKEM Gembrot model enhanced students' ability to generate new ideas, innovate based on existing concepts, design creative products, produce tangible work from available materials, and evaluate peer work constructively. Table 3 presents the comparison of creativity achievement between Cycle I and Cycle II.

Table 3. Creativity Achievement in Cycle I and Cycle II.

Creativity Indicator	Cycle I (%)	Cycle II (%)
Idea Generation	65%	75%
Innovation	55%	80%
Design Skills	65%	85%
Production Skills	65%	85%
Evaluation Skills	70%	90%

The results in Table 3 show a marked improvement in students' creativity across both cycles. Notably, innovation increased from 55% to 80%, indicating that students became more capable of modifying initial ideas into more meaningful and useful outputs. Design and production skills also rose significantly (from 65% to 85%), suggesting greater confidence and competence in creating tangible creative products. Evaluation skills reached 90%, demonstrating enhanced ability in giving constructive feedback. To illustrate these improvements visually, Figure 3 presents a comparative bar chart of creativity achievement in Cycle I and Cycle II.

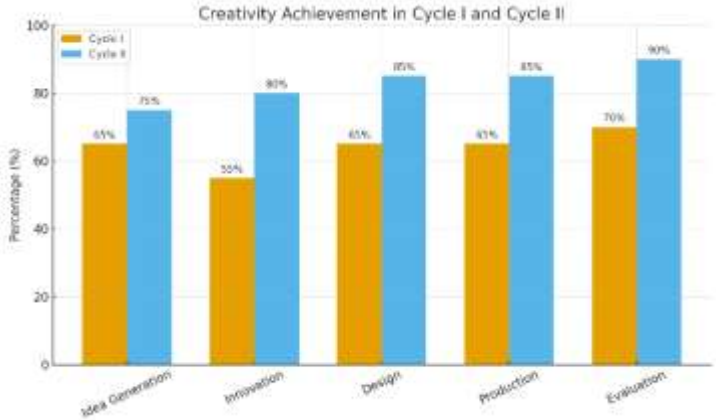

Figure 3. Students' Creativity Skills Between Cycles.

Final Scores IPAS Learning Outcomes

Mastery learning percentage was calculated to determine the proportion of students who met the minimum mastery criteria (KKTP = 70). This measure is essential as it reflects whether the intervention successfully brought all students to the expected standard of performance. Table 4 presents the mastery results for Cycle I and Cycle II.

Table 4. Final Scores IPAS Learning Outcomes in Cycle I and Cycle II.

Category	Cycle I	Cycle II
Not Complete (0–69)	6 students (60%)	0 students (0%)
Complete (70–100)	4 students (40%)	10 students (100%)

Table 5 shows a major change between cycles: in Cycle I, only 40% of students achieved mastery, while in Cycle II, all students (100%) successfully met the criteria. This shift reflects not only an improvement in average scores but also a complete elimination of underperformance among the students. To provide a clearer visual comparison, Figure 5 displays the mastery percentages for both cycles.

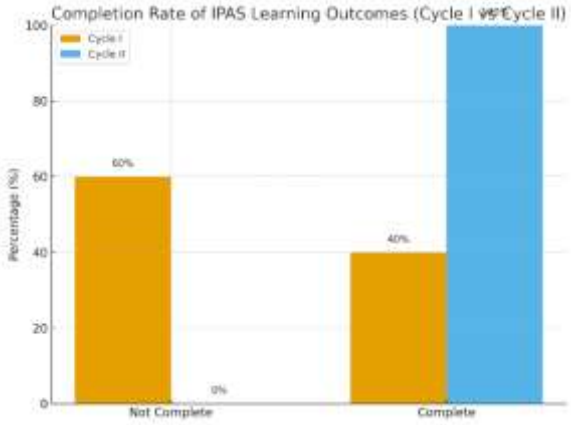

Figure 4. Final Scores IPAS Learning Outcomes.

Discussion

The implementation of the PAIKEM Gembrot model (Active, Innovative, Creative, Effective, Joyful, Cheerful, and Meaningful Learning) in IPAS instruction for fifth-grade students at UPT SDN Unjuruiya No. 45 Kepulauan Selayar is a highly relevant strategy for improving students' literacy, numeracy, and creativity. The characteristics of elementary students—who tend to be active, explorative, and learn through direct experience—make PAIKEM Gembrot particularly suitable, as it maximizes their potential through collaborative activities, project-based learning, educational games, and authentic problem-solving tasks. Within the context of IPAS, which requires scientific reasoning and process skills, this approach creates a more engaging and meaningful learning environment. Students do not merely receive information; they become discoverers and constructors of knowledge through concrete experiences rooted in their island environment.

Sutrisno, in his conceptual study on active learning in elementary schools, explains that PAIKEM Gembrot is effective when teachers give students the freedom to explore, experiment, and build understanding through hands-on activities [27]. This aligns well with IPAS learning, which emphasizes observing natural phenomena, analyzing simple data, and developing scientific process skills. Sutrisno highlights that active learning can only occur when teachers shift from being dominant knowledge providers to facilitators who guide and motivate students in a variety of classroom activities. This principle contributes significantly to the improvement of basic literacy and numeracy, as students learn to read information, analyze data, and use numerical reasoning to solve everyday problems independently.

Similarly, Rahmawati, in her analysis of creativity in elementary learning, emphasizes that PAIKEM Gembrot offers broad opportunities for student expression and innovation through poster-making, simple simulations, mini IPAS projects, and environmental experiments [28]. She argues that creativity develops when students are given the chance to express personal ideas, choose problem-solving strategies, and produce diverse learning products. In this model, the teacher provides stimuli in the form of real-life problems such as weather changes, local economic activities, and the use of natural resources in the island environment, thereby strengthening students' divergent thinking—the core of creativity.

Hidayat , who examined various innovative learning models in the post-pandemic era, explains that PAIKEM Gembrot excels in creating a joyful and liberating learning atmosphere. This is important because elementary students tend to lose interest quickly if learning is conducted in a one-way manner [29]. By incorporating educational games, group discussions, simple experiments, and activity-based worksheets, teachers can foster intrinsic motivation. Hidayat further asserts that enjoyable learning enhances learning endurance, allowing students to stay focused and engaged—which directly contributes to increased literacy and numeracy.

The implementation of PAIKEM Gembrot in this study demonstrated a clear developmental pattern in students' abilities from Cycle I to Cycle II. In Cycle I, out of 10 students, 6 students were in the low category (60–69; 60%), and 4 students were in the moderate category (70–79; 40%). No students achieved very low, high, or very high categories. This means that 60% of the students did not reach mastery, while only 40% met the minimum criteria. These results indicate that although active and joyful learning had been introduced, students still needed time to adapt to the new instructional model. Some students remained passive, had difficulty collaborating effectively, and were not yet accustomed to analyzing IPAS data independently.

Significant improvement occurred in Cycle II after the teacher refined instructional strategies by clarifying instructions, increasing group facilitation, enriching visual learning media, and expanding simple experimental activities. As a result, no students remained in the very low or low categories. Only one student fell into the moderate category (70–79; 10%), while 6 were in the high category (80–89; 60%), and 3 reached the very high category (90–100; 30%). This means that 100% of students achieved mastery. This improvement demonstrates the success of PAIKEM Gembrot in enhancing literacy and numeracy skills as well as stimulating creativity through collaborative tasks, data presentation activities, and environment-based experiments.

The strengths of PAIKEM Gembrot are clearly reflected in the findings of this study. This model enhances motivation, encourages creative thinking, improves the ability to read scientific information, and strengthens numeracy skills through measurement, observation, and data analysis activities. The approach is also flexible and easily integrated into the local island context, making learning more relevant and meaningful. However, the model has several limitations. First, it requires substantial preparation and teaching materials, demanding additional time from teachers. Second, classroom management must be strong, as active and collaborative learning can generate noise. Third, not all students immediately feel comfortable working in groups, so the adaptation process during the initial implementation may proceed slowly, as reflected in the Cycle I results.

Overall, the application of PAIKEM Gembrot in IPAS learning at UPT SDN Unjuruiya No. 45 Kepulauan Selayar has proven effective in improving students' literacy, numeracy, and creativity. The substantial improvement from Cycle I to Cycle II indicates that this model can be recommended as an alternative instructional approach for elementary schools, particularly in contexts requiring environmental, contextual, creative, and joyful learning. The model not only enhances academic achievement but also cultivates active learning character, which is essential for 21st-century education.

5. Conclusions

This study concludes that the PAIKEM Gembrot model effectively improved the literacy, numeracy, and creativity of fifth-grade students in IPAS learning at UPT SDN Unjuruiya No. 45 Selayar Islands. Students showed substantial progress in understanding scientific information, processing numerical data, and generating creative ideas, reflected in the mastery increase from 40% in Cycle I to 100% in Cycle II. These findings confirm that active, contextual, and enjoyable learning experiences can foster more engaged and productive learning behaviors.

Theoretically, the study strengthens the evidence supporting active learning approaches that position students as independent constructors of knowledge, especially in enhancing foundational competencies such as literacy and numeracy. Practically, the results highlight the importance of varied learning activities, contextual materials, and collaborative tasks, suggesting that PAIKEM Gembrot can serve as a viable pedagogical model for improving IPAS learning quality in elementary schools.

Despite its promising outcomes, the study is limited by its small sample and single-school setting, which may restrict generalizability. Future research should involve larger and more diverse samples, examine long-term impacts, and explore digital or project-based enhancements to further optimize the effectiveness of PAIKEM Gembrot in different IPAS learning contexts.

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