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CALISTUNG STUDIO TO IMPROVE LITERACY AND NUMERACY OF JUNIOR HIGH SCHOOL STUDENTS

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Abstract

Literacy and numeracy skills are very important basic competencies for Junior High School students. However, the results of a national survey show that many students in Indonesia are still below the expected literacy and numeracy standards. One approach that can be used to overcome this problem is the implementation of a calistung studio, a learning program that focuses on improving reading, writing, and arithmetic skills. This research aims to evaluate the effectiveness of the studio calistung program in improving junior high school students' literacy and numeracy skills. This research uses a quasi-experimental approach with an AKM pre-test and post-test design. A total of 10 eighth grade students at a private junior high school participated in this study. Data were collected through literacy and numeracy tests before and after the implementation of the calistung studio program. The increase in student abilities was measured based on the results of the pre-test and post-test. The results showed an increase in both aspects studied. Students' literacy skills increased from 34% in the pre-test to 42% in the post-test. Meanwhile, numeracy skills increased from 14% in the pre-test to 20% in the AKM post-test. The calistung studio program has contributed positively to improving junior high school students' literacy and numeracy skills, although the increase is still relatively small. Further improvements are needed to extend the duration and provide intensive assistance for students who experience difficulties.

Keywords : *Calistung studio, Literacy, Numeracy*

Abstrak

Kemampuan literasi dan numerasi merupakan kompetensi dasar yang sangat penting bagi siswa Sekolah Menengah Pertama (SMP). Namun, hasil survei nasional menunjukkan bahwa banyak siswa di Indonesia masih berada di bawah standar kemampuan literasi dan numerasi yang diharapkan. Salah satu pendekatan yang dapat digunakan untuk mengatasi masalah ini adalah penerapan studio calistung, yaitu program pembelajaran yang terfokus pada peningkatan keterampilan membaca, menulis, dan berhitung. Penelitian ini bertujuan untuk mengevaluasi efektivitas program studio calistung dalam meningkatkan kemampuan literasi dan numerasi siswa SMP. Penelitian ini menggunakan pendekatan kuasi-eksperimen dengan desain pre-test dan post-test AKM. Sebanyak 10 siswa kelas VIII di sebuah SMP berpartisipasi dalam penelitian ini. Data dikumpulkan melalui tes kemampuan literasi dan numerasi sebelum dan sesudah pelaksanaan program studio calistung. Peningkatan kemampuan siswa diukur berdasarkan hasil pre-test dan post-test. Hasil penelitian menunjukkan adanya peningkatan pada kedua aspek yang diteliti. Kemampuan literasi siswa meningkat dari 34% pada pre-test menjadi 42% pada post-test. Sementara itu, kemampuan numerasi meningkat dari 14% pada pre-test menjadi 20% pada post-test AKM. Program studio calistung berkontribusi positif dalam meningkatkan kemampuan literasi dan numerasi siswa SMP, meskipun peningkatannya masih relatif kecil. Diperlukan penyempurnaan lebih lanjut untuk memperpanjang durasi dan memberikan pendampingan intensif bagi siswa yang mengalami kesulitan.

Kata Kunci : *studio kalistung, literasi, numerasi*

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INTRODUCTION

Education is a crucial aspect in a country's development, which includes developing literacy and numeracy skills as the main foundation (Chen et al., 2022; Dahlan et al., 2023). In research conducted by (Wulan & Samosir, 2022) highlighted the relatively low literacy and numeracy skills of students. This has a negative impact on several things such as students' critical thinking skills (Mellyzar et al., 2023), and low understanding of concepts (Haroky et al., 2019). These findings highlight the need for interventions to improve literacy and numeracy skills among students.

Literacy and numeracy skills are two basic skills that are very important for students' cognitive development and are the foundation for lifelong learning. Literacy helps students understand, evaluate, and use written information, while numeracy involves the ability to think logically, calculate, and solve mathematical problems. Literacy is not just about being able to read and write. With the development of knowledge and technology, literacy can also be linked to science, information and technology literacy, so that the ability to read and write is a basic skill for gaining knowledge and the main foundation for the development of broader knowledge (Amri & Rochmah, 2021). Meanwhile, according to (Mu;arif et al., 2023) numeracy skills are the ability to analyze, reason, formulate, solve, and interpret mathematical problems in various forms and contexts, this is the core of mathematical skills.

Literacy and numeracy skills can be interpreted as the abilities possessed by students to operate number concepts and arithmetic operation skills as well as analyze symbols or language in everyday life (Nurchayono et al., 2023). In Indonesia, although the curriculum has included these two skills from an early age, the results of national and international surveys such as PISA (Programme for International Student Assessment) in 2022 showed that the literacy and numeracy skills of students in Indonesia decreased by 12-13 points compared to 2018.

This problem is also reflected in observations conducted at a State Junior High School (SMP) in Kemiri District, where many students have difficulty in understanding complex readings and face challenges when having to apply mathematical concepts in life. In class, teachers often complain about students' low literacy skills in analyzing text, as well as weaknesses in numeracy, especially when it comes to solving mathematical problems that require logical reasoning. These difficulties not only have an impact on students' academic performance but also on their learning motivation and self-confidence.

One approach that is starting to be used in an effort to overcome this problem is the application of interesting and applicable learning media and learning methods (Pratama & Khotimah, 2024) which we then called the Calistung Studio (reading/baca, writing/tulis, arithmetic/hitung). The Calistung Studio is a learning model based on intensive training and mentoring that focuses on improving basic literacy and numeracy skills. Through this method, students are involved in a variety of fun yet structured practical activities, with the aim of strengthening the foundation of their reading, writing and arithmetic skills. However, even though this method has been implemented in several schools, there is still not much research that evaluates in depth the effectiveness of calistung studios in increasing literacy and numeracy, especially at the junior

high school level. Most research still focuses on primary education. Therefore, this research aims to fill this gap by examining the impact of implementing studio calistung on junior high school students, as well as analyzing how this approach is able to improve students' literacy and numeracy skills, especially in schools with varied student backgrounds.

In junior high school, several contextual problems arise, such as: Many students in grades VII to VIII have not achieved the minimum standard in reading and arithmetic skills, thus affecting their ability to follow further lessons (Suryadi & Husna, 2022). In addition, for schools with heterogeneous student backgrounds, there is a significant gap between students who have access to additional educational resources and those who do not, thus widening the gap in literacy and numeracy achievement (Sinambela et al., 2024). In addition, the busy curriculum means that time for practicing basic literacy and numeracy is limited. Many schools focus more on achieving other subject matter, while students who experience basic literacy and numeracy difficulties are left behind (Khoirunnisa & Adirakasiwi, 2023). Therefore, through this research, it is hoped that empirical evidence can be found about the effectiveness of the calistung studio in overcoming these problems, and the results can be used to recommend more optimal learning strategies at the junior high school level.

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METHOD

The approach used in this study is a quantitative approach. Data were obtained using test instruments (pre-test and post-test), interviews, observations and documentation. Literacy and numeracy measurements used instruments provided on the Asesmen Kompetensi Minimum (AKM) website at <https://pusmendik.kemdikbud.go.id/>. The sample in this study were 8th grade students at a Junior High School (SMP) in Kemiri District, Tangerang Regency, Banten. The sample in this research was 10 class VIII students who were selected in a structured manner using the criteria of low literacy and numeracy abilities.

The hypothesis in this research is that there is a difference in the average literacy and numeracy scores of students from the pre-test and post-test after implementation. The statistical hypothesis of literacy ability scores formulated in this study can be observed as follows:

- H0: There is no difference in the average pre-test and post-test scores on students' literacy scores.
- H1: There is a difference in the average pre-test and post-test scores on students' literacy scores.

Meanwhile, the statistical hypothesis of numeracy ability scores formulated in this study can be observed as follows:

- H0: There is no difference in the average pre-test and post-test scores on students' numeracy scores.
- H1: There is a difference in the average pre-test and post-test scores on students' numeracy scores.

The Methods sections should be brief, but they should include sufficient technical information to allow the experiments to be repeated by a qualified reader. Only new methods should be described in detail. Cite previously published procedures in References.

RESULTS AND DISCUSSION

Results

Calistung Studio is a facility that aims to help students to be able to read, write and count. Calistung is a method that can help prepare children for further formal education, giving them a strong foundation of literacy and numeracy, so that they can help them learn at school (Mayadiana Suwarma et al., 2023). Calistung is held at kosing hour twice a week on every Tuesday and Wednesday for grade VIII students. Students who are still not fluent in reading, writing and arithmetic get a special class in the calistung studio to help understand their literacy and numeracy skills. The following are the stages of activities in the calistung studio that can be used to improve the literacy and numeracy skills of junior high school students:

1. Preparation stages

At this stage, the teacher or facilitator conducts initial identification of students' basic literacy and numeracy skills. This activity involves:

- Data collection: Data collection was carried out to capture students who needed assistance at the calistung studio, this data was obtained from class VIII teachers.
- Pre-test: AKM pre-test is conducted at the beginning of the meeting before students receive action in the calistung studio. The results of this pre-test aim to measure the level of numeracy and literacy of students. This test can be in the form of simple reading comprehension questions and basic arithmetic exercises.
- Pre-test result analysis: The pre-test results are analyzed to determine the extent of students' understanding. This will be used as a reference for designing calistung studio activities that suit student needs.
- Preparation of Learning Plan: Based on the results of the analysis, the facilitator prepares an activity plan that is appropriate to the students' abilities. Students are grouped based on their ability level so that activities can be adjusted to their needs.

2. Strengthening literacy

The main focus of this stage is to strengthen the ability to read, write, and understand texts. This process lasts for 2 months. Some of the activities carried out include:

- Reading Together: Students are guided to read the text together with guidance from the facilitator. This activity includes practicing correct pronunciation and proper intonation.
- Reading Comprehension Exercise: After reading, students are asked to answer text comprehension questions, ranging from simple questions to critical analysis according to their abilities. This aims to train reading comprehension, analysis, and interpretation..
- Writing a Summary: Students are trained to write a summary of the text they have read. The goal is to train their logical thinking skills and express ideas in writing.
- Discussion: This activity aims to improve students' ability to understand texts more deeply through discussion. The facilitator guides the discussion with questions that stimulate critical understanding.



Figure 1. Literacy skills activities in the calistung studio

3. Strengthening numeracy

At this stage, the focus is on strengthening mathematical counting, logic, and problem-solving skills. This process lasts for 2 months. Activities that can be done include:

- **Basic Counting Practice:** Students are given basic counting practice such as addition, subtraction, multiplication, and division. This practice is carried out in stages according to the identified student's abilities.
- **Story Problem Practice:** Students are invited to solve numeracy problems in the form of story problems involving real situations. It aims to train analytical skills and the application of mathematical concepts in everyday life.
- **Mathematical Games:** The use of educational games involving calculations or mathematical logic is also applied to maintain students' interest and motivation in learning numeracy.
- **Problem Solving Discussion:** Students are grouped to discuss solving more complex problems. This aims to train problem solving skills and critical thinking collaboratively.



Figure 2. Numeracy skills activities in the calistung studio

4. Evaluation and feedback stage

At this stage, an evaluation is carried out to see students' progress after participating in a series of studio calistung activities. Evaluation activities include:

- **Final Test/ Post-test:** Students are given an AKM post-test similar to the AKM pre-test to see improvements in their literacy and numeracy.
- **Formative Assessment:** In addition to the final test, formative assessment is conducted during the activity to continuously monitor student development. For example, through observation of discussion activities, writing skills, and solving math problems.
- **Individual Feedback:** The facilitator provides individual feedback to each student based on their evaluation results. This feedback is constructive and provides suggestions on areas for improvement and further steps to improve skills.

The AKM pre-test of literacy and numeracy skills at school was attended by 10 students, with the results shown in the following table:

Table 1. Student AKM pre-test results

No	Pre-test	Number of students	Average Percentage Correct Answers
1.	Literacy	10	34 %
2.	Numeracy	10	14 %

After implementing the AKM pre-test, a calistung studio program was carried out to support students' literacy and numeracy understanding. Then after 2 months of students undergoing the program in the calistung studio, an AKM post-test was carried out again to measure students' literacy and numeracy abilities. The results obtained after implementing the AKM class post-test can show that there is an increase in students' literacy and numeracy abilities. Of the 10 students who took the AKM post-test, the following results were obtained:

Table 2. Student AKM post-test results

No	Pre-test	Number of students	Average Percentage Correct Answers
1.	Literacy	10	42 %
2.	Numeracy	10	20 %

From the results of the pre-test and post-test activities of the AKM class, it can be concluded that the AKM class scores obtained by students before and after the implementation of the calistung studio program have increased. The increase in the results of the AKM Class pre-test and post-test of junior high school students can be seen in the following diagram:

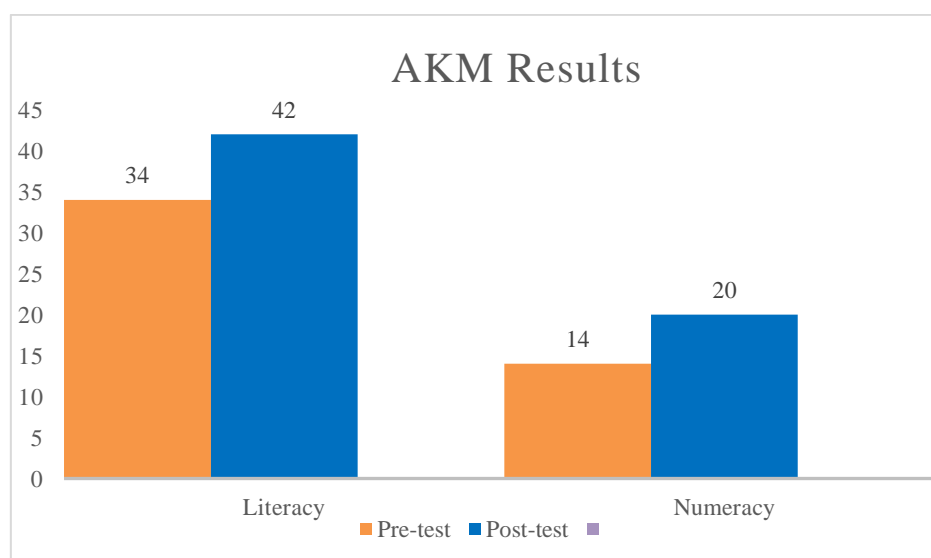


Figure 3. AKM Result Graph

Discussion

Overall, although the increase in post-test results in both aspects (literacy and numeracy) has not reached the ideal level, this indicates that the calistung studio program has the potential to help improve students' basic skills. An increase of 8% in literacy and 6% in numeracy indicates that this program can overcome some of the difficulties faced by students, although improvements are needed in its implementation.

This relatively small increase could be due to a number of factors, including:

- Program Duration: The calistung studio program may still require a longer period of time so that the results obtained can be more optimal.
- Student Motivation and Confidence Levels: Students with low levels of self-confidence or who are less motivated may require a special approach to better engage them in the learning process.

- Differences in Initial Ability: Students with lower baseline abilities may need more time and intensive support to catch up.

Thus, further evaluation is needed to identify the obstacles faced during the program and to design more effective strategies in improving students' literacy and numeracy skills. The program can be improved by increasing intensive training, providing personal support to students who are lagging behind, and considering the use of technology or more interactive learning aids to accelerate the learning process.

CONCLUSION

Based on the results of this study, the implementation of the calistung studio program showed an increase in the literacy and numeracy skills of junior high school students, although the increase was still relatively small. In the literacy aspect, there was an increase in pre-test results from 34% to 42% in the post-test, while in the numeracy aspect, the increase occurred from 14% to 20%. This increase indicates that the calistung studio method has the potential to help students develop basic skills in reading, writing, and arithmetic.

The calistung studio program that utilizes active activities, such as reading together, group discussions, story problem exercises, and math games, has a positive influence on student engagement in the learning process. However, the resulting improvements have not yet reached the expected literacy and numeracy standards. Factors such as the limited duration of the program, differences in students' initial abilities, and varying levels of motivation and self-confidence appear to be obstacles in achieving more significant results.

Thus, although the results of this study indicate improvements, further improvements are needed in the implementation of the program. Improvements can be made by extending the duration of the program, providing intensive assistance to students in need, and developing more adaptive and interactive learning methods to increase the effectiveness of the program in improving junior high school students' literacy and numeracy.

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