

Strengthening Reading, Writing, and Numeracy Literacy through Integrated Thematic Learning for Students in the Elementary School Teacher Education

Rivaldo Paul Telussa^{1*}, Santji Afi Rangkyo², Jasmari³, Tut Hidayatillah⁴,
Jermanto Subeno Lasamahu⁵

^{1,2,3,4,5} Universitas Satya Wiyata Mandala, Indonesia
*Corresponding Author: rivaldopaultelussa@gmail.com

ABSTRACT

This community service program was conducted in response to the need to strengthen integrated literacy and numeracy competencies among preservice elementary school teachers. The purpose of this study was to enhance students' reading–writing literacy and numeracy skills through the implementation of integrated thematic learning in the Elementary School Teacher Education Program (PGSD) at Universitas Satya Wiyata Mandala. The method employed was a participatory and reflective community service approach, implemented through thematic learning workshops, guided practice, mentoring, and continuous reflection activities. Participants were actively involved in critical reading, reflective writing, and contextual numeracy problem-solving embedded within thematic learning activities relevant to elementary education. Data were collected through observation, literacy and numeracy assessments, student response questionnaires, and documentation, and analyzed descriptively using qualitative and simple quantitative techniques. The findings indicate that the implementation of integrated thematic learning effectively improved students' ability to connect reading, writing, and numeracy skills in a meaningful and contextual manner. In addition, students demonstrated increased pedagogical awareness, confidence, and readiness to design thematic learning activities that integrate literacy and numeracy for elementary classrooms. Overall, the program successfully achieved its objectives and shows strong potential for sustainable implementation in preservice teacher education to support the development of competent and reflective future elementary school teachers.

Keywords: Literacy, Numeracy, Pedagogy, Preservice, Thematic

INTRODUCTION

Literacy, reading, writing, and numeracy are fundamental competencies that every individual must possess to face the challenges of the 21st century (Sidiq, et al., 2023); Telussa, et al., 2025). Literacy is no longer understood merely as the ability to read and write mechanically, but rather includes the ability to understand, process, and use information critically in various life contexts. Likewise, numeracy is seen as a logical and quantitative thinking skill that supports rational decision-making. A study conducted by Maghfiroh, et al., (2025) emphasized that strengthening literacy and numeracy is a primary prerequisite for improving the quality of human resources, particularly in the field of basic education.

In the context of higher education, particularly in the Elementary School Teacher Education (PGSD) Study Program, literacy, reading, writing, and numeracy hold a strategic position because students are prepared as future educators at the elementary school level. PGSD students are not only required to master academic concepts but also to possess strong literacy skills to effectively transform knowledge to students. However, research by Nabila et al. (2023) shows that the literacy and numeracy skills of prospective teacher students are still in the moderate category, even tending to be low in the aspects of understanding and applying concepts.

The low literacy and numeracy of elementary school teacher education students is inextricably linked to learning patterns that are still partial and focused solely on mastering material. Fragmented learning makes it difficult for students to meaningfully connect cross-disciplinary concepts. As a result, critical, reflective, and contextual thinking processes are not optimally developed. This

condition is reinforced by research findings from Savitri et al. (2023), which states that conventional learning is less effective in developing integrated literacy skills.

One approach considered relevant to addressing these issues is integrated thematic learning. Integrated thematic learning enables the integration of various concepts and skills within a single, contextual theme, enabling students to build holistic understanding. This approach encourages active student engagement in reading, writing, and processing numerical data simultaneously. Studies by Lestari (2025); Umam et al. (2025) state that integrated thematic learning is effective in improving literacy and numeracy because it emphasizes the interconnectedness between concepts and real-world experiences.

On the other hand, the implementation of integrated thematic learning in higher education, particularly in the Elementary School Teacher Education Study Program, still faces various challenges. These challenges include limited understanding of thematic learning design among lecturers and students, a lack of integrated learning tools, and minimal reflective practice in the learning process. As a result, the potential of integrated thematic learning in strengthening literacy, reading, writing, and numeracy has not been optimally utilized. This is in line with research results from Fajriyah, K. (2018); Syahda, et al., (2025), which show that the success of thematic learning is highly dependent on systematic planning and implementation in improving literacy.

Based on these conditions, a systematic effort is needed in the form of a community service program focused on strengthening the reading, writing, and numeracy skills of Elementary School Teacher Education (PGSD) students. The community service program is seen as a strategic vehicle for integrating theory and practice in contextual learning. Through community service, students can be actively involved in a learning process that is applicable, reflective, and oriented toward solving real-world problems. This approach is believed to improve the quality of learning and the students' competencies as future educators.

The problem-solving plan for this community service activity was implemented through the implementation of integrated thematic learning designed systematically and sustainably. Learning focused on critical reading, reflective writing, and numerical data processing within the context of basic education themes. This strategy enabled students to develop literacy and numeracy skills in an integrated manner, while simultaneously enhancing higher-order thinking skills. Previous research by Pohan et al. (2023) demonstrated that an activity- and theme-based approach significantly increased student engagement and understanding.

Furthermore, the integrated thematic learning within this community service activity is also aimed at fostering students' reflective awareness of the role of literacy and numeracy in elementary school learning. Students are trained not only as learning participants but also as designers and evaluators of thematic learning. Thus, this activity serves as a vehicle for authentic learning that strengthens students' pedagogical competencies. This aligns with the view that prospective teachers need direct experience with innovative learning practices to be able to implement them in the classroom.

The main objective of this community service activity is to strengthen the literacy, writing, and numeracy skills of students in the Elementary School Teacher Education Program at Satya Wiyata Mandala University through the implementation of integrated thematic learning. Specifically, this activity aims to improve the ability to understand texts, express ideas in writing, and apply numeracy concepts in the context of thematic learning. By achieving these goals, it is hoped that students will have better academic and pedagogical readiness as prospective elementary school teachers. This objective aligns with the policy direction for improving the quality of teacher education in Indonesia.

Overall, strengthening literacy, reading, writing, and numeracy through integrated thematic learning is a strategic step in improving the quality of prospective elementary school teachers. This community service activity not only contributes to improving student competency but also serves as an innovative learning model that can be replicated in the context of elementary education. Thus, this activity is expected to have a sustainable impact on educational development, both in higher education and elementary schools. This integrative approach emphasizes that literacy and numeracy are the main foundations for building quality and competitive education.

METHOD

Type and Design of Community Service

This community service activity uses a participatory and reflective action-based community service design. This design positions students as active subjects in the learning process, not merely objects of the activity. The participatory approach was chosen because it allows for direct student involvement in every stage of the activity, from planning and implementation to evaluation of integrated thematic learning. Furthermore, the reflective design is used to encourage students to self-evaluate their development in reading, writing, and numeracy skills experienced during the community service activity.

Implementation Approach and Methods

The approach used in this community service program is an integrated thematic learning approach based on literacy and numeracy. Implementation methods include educational workshops, thematic learning practices, group discussions, mentoring, and learning reflection. The workshops are used to provide conceptual reinforcement related to reading, writing, numeracy, and integrated thematic learning. The learning practices aim to train students to integrate literacy and numeracy into thematic activities, while discussions and mentoring focus on strengthening understanding and collaborative problem-solving.

Subjects and Location of Community Service

The subjects of this community service activity were students in the Elementary School Teacher Education (PGSD) Study Program at Satya Wiyata Mandala University. These students were selected because of their strategic role as future educators who will implement literacy and numeracy learning in elementary schools. The community service activities were conducted on the Satya Wiyata Mandala University campus, utilizing classrooms and supporting learning facilities. The academic environment was chosen to ensure the activities were conducive and integrated with students' academic activities.

Planning Stage

The planning stage begins with a needs analysis to identify the initial state of students' reading, writing, and numeracy literacy skills. The analysis is conducted through initial observations, discussions with lecturers, and document review related to student learning outcomes. Based on the analysis, the community service team develops an integrated thematic learning toolkit, including activity designs, teaching materials, student worksheets, and evaluation instruments. This planning stage aims to ensure that community service activities align with the needs and characteristics of PGSD students.

Implementation Stage

The implementation stage of the community service program is carried out through the implementation of integrated thematic learning, which takes place in stages and on an ongoing basis. Activities begin with the provision of literacy and numeracy reinforcement materials, followed by thematic learning practices based on contextual themes in elementary education. Students are actively involved in critical reading, reflective writing, and numerical problem-solving, integrated within a single learning theme. Throughout the program, the community service team acts as facilitator and mentor, guiding students in developing their literacy and numeracy skills.

Mentoring and Reflection Stage

Mentoring is carried out intensively throughout the learning process. During this stage, students are provided with guidance in designing, implementing, and evaluating integrated thematic learning activities. Furthermore, reflection activities are carried out periodically through open discussions and individual reflection writing. Reflection aims to help students identify the development of their literacy and numeracy skills, as well as any obstacles encountered during their community service activities.

Data Collection Techniques

Data collection for this community service activity was conducted using observations, literacy and numeracy tests, student response questionnaires, and activity documentation. Observations were used to observe student engagement and activities during thematic learning. Literacy and numeracy tests were used to determine changes in student abilities before and after the community service activity. The student response questionnaire was used to obtain data on student perceptions and satisfaction with the implementation of the activity, while documentation served as evidence of implementation and supported data analysis.

Data Analysis Techniques

The data obtained were analyzed using simple qualitative and quantitative descriptive analysis. Qualitative data from student observations and reflections were analyzed by grouping findings based on specific themes related to literacy, reading, writing, and numeracy. Meanwhile, quantitative data from test results were analyzed by comparing scores before and after the community service activity to assess student performance improvements. The results of the analysis were used as a basis for evaluating the effectiveness of the community service activity.

Community Service Implementation Evaluation

Evaluation is conducted to assess the achievement of community service objectives. Evaluation includes both process and outcome evaluations. Process evaluation focuses on activity implementation, student participation, and the appropriateness of methods to the established plan. Outcome evaluation focuses on improving students' reading, writing, and numeracy literacy skills, as well as changes in student attitudes and understanding of integrated thematic learning. Evaluation is conducted continuously during and after the community service activities.

Monitoring and Follow-up

Periodic monitoring of community service implementation is conducted to ensure the sustainability of the program's impact. Monitoring is conducted through continued communication with students and lecturers, as well as reviewing the implementation of integrated thematic learning in subsequent lectures. Follow-up from this activity includes recommendations for developing integrated thematic learning based on literacy and numeracy in the Elementary School Teacher Education Study Program. Through monitoring and follow-up, it is hoped that this community service activity will have a long-term impact on improving the quality of prospective elementary school teachers.

RESULTS AND DISCUSSION

Model for Strengthening Literacy, Reading, Writing, and Numeracy through Integrated Thematic Learning

The main outcome of this community service activity was the development of a Model for Strengthening Literacy, Reading, Writing, and Numeracy through Integrated Thematic Learning for Elementary School Teacher Education (PGSD) students at Satya Wiyata Mandala University. This model is designed as an educational service that integrates critical reading, reflective writing, and contextual numeracy skills within a single learning theme. This model positions students as active learners who not only receive material but also construct knowledge through meaningful learning experiences.

The discussion of these results indicates that the integrated thematic approach is able to bridge literacy and numeracy skills simultaneously. Students more easily understand the relationships between concepts because they are presented in a holistic context and are relevant to elementary school learning. This finding aligns with research by Evianah, N. (2023), which states that thematic learning improves functional literacy and numeracy skills by encouraging cognitive and reflective integration in students.



Figure 1. Strengthening Reading, Writing, and Numeracy Literacy through Integrated Thematic Learning for Elementary School Teacher Education Student

Dimensions and Specification of Activities as a Solution for Community Service

The results of the Community Service Program implementation indicate that the activities have three main dimensions: educational, pedagogical, and socio-academic. In the educational dimension, students experienced improved abilities in understanding reading texts and solving context-based numerical problems. In the pedagogical dimension, students were able to design integrated thematic learning that incorporates elements of literacy and numeracy. Meanwhile, in the socio-academic dimension, a culture of discussion, collaboration, and reflection was established in the learning process.

The activity specifications include the use of integrated thematic modules, literacy and numeracy-based student worksheets, and simple evaluation instruments. The discussion of these results indicates that structured and contextual learning tools play a critical role in successfully strengthening literacy and numeracy. This aligns with research findings by Astiningtyas (2018), which emphasized that the success of thematic learning is greatly influenced by the completeness and appropriateness of learning tools to student characteristics.



Figure 2. Student Simulation In Literacy Learning

Activity Documentation and Implementation Analysis

The documentation of the activities demonstrates the students' active involvement throughout the entire series of PKM activities. Photos of the workshop activities show students engaging in interactive reinforcement of literacy concepts, reading, writing, and numeracy. This activity serves as an important initial step in building students' conceptual understanding before thematic learning practices are implemented.

Furthermore, photos of integrated thematic learning practices show students working in groups to read thematic texts, write reflections, and solve context-based numeracy problems. Discussion of this documentation indicates that students are becoming accustomed to integrating various skills into a single learning activity. This finding aligns with research by Handiyati et al. (2023), which states that documentation of practice-based learning activities demonstrates increased student engagement and conceptual understanding.



Figure 3. Student Simulation In Literacy Learning

Strengths and Weaknesses of Activity Results

The results of the PKM implementation demonstrated several key strengths, including improved integrated reading, writing, and numeracy skills in students, increased student confidence in designing thematic learning, and a growing awareness of the importance of literacy and numeracy as the foundation of elementary school learning. The developed model is also flexible and easily adapted to various learning themes.

However, the discussion of the results also revealed several limitations, such as limited implementation time and differences in students' initial abilities. This resulted in uneven achievement across all participants. These findings align with research by Antara & Esaputra, I.N.T. (2024); Sari, et al., (2024), which states that literacy strengthening programs require sufficient duration and ongoing support to achieve optimal impact.

Level of Implementation Difficulty and Opportunities for Sustainability

The evaluation results indicate that the level of difficulty in implementing this Community Service Program (PKM) activity is moderate, particularly during the mentoring and practice phases of integrated thematic learning. Students need time to adapt to a learning approach that demands the simultaneous integration of literacy and numeracy. However, through intensive mentoring and ongoing reflection, these difficulties can be minimized.

A discussion of these results indicates that there is ample opportunity for sustainability. The model for strengthening literacy and numeracy through integrated thematic learning can be integrated into Elementary School Teacher Education (PGSD) lectures and student field experience activities. This finding aligns with research by Solahudin (2024), which states that innovative learning-based Community Service Programs (PKM) programs have a high chance of sustainability if they are relevant to institutional needs and educational policies.

CONCLUSION

This community service activity successfully addressed the problem of low literacy strengthening of reading, writing, and numeracy of students of the Elementary School Teacher Education Study Program, Satya Wiyata Mandala University, through the implementation of integrated thematic learning. The implementation of a learning model that integrates critical reading, reflective writing, and numerical problem solving activities in one learning theme has been proven to be able to improve the understanding, skills, and pedagogical awareness of students as prospective elementary school teachers. The achievement of the community service objectives is reflected in the increasing ability of students to link literacy and numeracy contextually and their readiness to design meaningful integrated thematic learning. Thus, the community service implemented not only has a positive impact on students' academic competence, but also contributes to strengthening the quality of prospective elementary school educators in a sustainable manner.

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