Service-Learning Initiative: Reading and Numeracy Tutoring for Early Childhood in Gampong Siron

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Abstract

INTRODUCTION

Education is an essential part of human life and plays a vital role in shaping individuals into better versions of themselves. In Indonesia, education continues to face the challenge of providing high-quality development. Education is aimed at enhancing both the physical and mental quality of individuals, either personally or collectively, as emphasized by Mulyati (2024). In this sense, knowledge is indispensable for improving the quality of human resources. Education is a conscious and planned effort intended to create learning environments and processes that develop spiritual potential, independence, moral intelligence, and essential skills required by students. For this reason, the government strives to continuously advance education for the younger generation. However, educational practices are influenced by internal and external factors, as noted by Ratnasari (2017).

Community service programs at universities should therefore be defined primarily as the application of research findings and technology for society. University scholars and students have the capacity to engage in concrete and meaningful activities that directly relate to the institution's contribution to social development. This activity is referred to as community service, which enables universities to support social progress and improve community welfare. In Indonesia, this mandate is embedded in the Tri Dharma of Higher Education, which requires lecturers and students to contribute directly to society (Jemadi, 2023). Programs of this nature are designed by universities to bring tangible benefits to society, particularly in advancing education and social well-being.

Ki Hajar Dewantara emphasized that education is an effort to improve character, mind, and physical development so that children can achieve life perfection in harmony with nature and society. Several internal and external factors influence children's learning outcomes. Internal factors include physical health, intelligence, motivation, talent, and readiness, while external factors include family environment, socioeconomic status, and cultural background (Faristiana, et., al, 2023). Given these dynamics, providing children with additional learning experiences becomes crucial to strengthening focus, motivation, and academic progress.

Learning assistance programs, such as tutoring, serve as an important medium to help students develop their abilities in both reading and numeracy. Although tutoring may sometimes be associated with learning fatigue, it has been proven to increase student motivation and improve academic achievement. Tutoring is defined as guidance in discovering the right way to learn, in choosing suitable study programs, and in overcoming difficulties in the learning process. Supplementary education in the form of courses, study groups, or community learning centers provides a supportive environment for children's development (Yektyastuti et al., 2021).

Practical Professional Community Service (PPKPM) is a form of student-led service program that involves interdisciplinary and cross-sectoral approaches within a specific community. PPKPM activities are typically conducted for one or two months in rural areas. At UIN Ar-Raniry, the establishment of this program reflects the institution's commitment to higher education through education, research, and community service. In this framework, PPKPM has been implemented in Gampong Siron, Kecamatan Ingin Jaya, Aceh Besar, where students carried out a free tutoring initiative focusing on reading and numeracy skills for early childhood learners. This program responded to the observation that many children in

Gampong Siron still face significant challenges in reading fluently and performing basic arithmetic (Apriyanti & Aprianti, 2023).

Previous community service research has shown that literacy-based tutoring can significantly improve children's readiness for formal schooling. For example, programs conducted in rural villages in Java and Sumatra demonstrated that structured reading activities increased early literacy scores by 25–35% within just two months of intervention. Similar initiatives in Eastern Indonesia reported a decline in the number of children struggling with basic numeracy from 60% to 30% after participating in guided tutoring sessions. These findings highlight that consistent exposure to interactive tutoring not only improves technical skills but also strengthens learning confidence and classroom participation.

In addition, service-learning initiatives that integrate parental involvement have been shown to accelerate learning outcomes. Research conducted in several Aceh Besar districts revealed that when parents were engaged in supporting at-home practices of reading and counting, children's learning improvements doubled compared to programs that relied solely on school-based tutoring. This suggests that community-based tutoring, especially when supported by family participation, is an effective strategy to address learning gaps among early childhood students in rural areas. These results provide strong justification for implementing similar service programs in Gampong Siron.

Therefore, the Service-Learning Initiative: Reading and Numeracy Tutoring for Early Childhood in Gampong Siron is designed to address the learning challenges faced by children in the area. By integrating educational and community engagement approaches, this program aims to improve early childhood literacy and numeracy, while simultaneously enhancing social participation and long-term educational readiness.

METHODS

This community service activity adopted the service learning method, which emphasizes a reciprocal process between academic contribution and community benefit. The method was implemented through several structured stages that ensured the program ran effectively and achieved its intended outcomes.

Observation Stage

The initial stage was devoted to direct observation in Gampong Siron, focusing on children aged 5–7 years who were the main subjects of the program. The researchers observed students' daily learning activities, identified their habits, and explored the challenges they faced in basic reading and arithmetic. Several indicators were reviewed, such as their ability to recognize numbers and letters,

their level of concentration during learning, and the support they received from their family and environment. This stage also involved informal discussions with local teachers and parents to obtain a more holistic picture of the students' learning readiness. From these observations, it was found that many children still struggled with basic operations such as multiplication and division, while some had not yet developed fluency in reading simple words. This mapping was important to design a program that matched the students' actual needs.

Planning Stage

After completing the observations, the research team moved on to the planning phase. In this stage, the team compiled a detailed activity plan that consisted of grouping students according to their age and learning ability, preparing learning modules, and designing teaching methods that emphasized interactive and enjoyable learning. For mathematics, the materials prepared included exercises on addition, subtraction, multiplication, and division, while for literacy the focus was on alphabet recognition and simple word formation. The plan also included the preparation of supporting media such as practice sheets, simple learning games, and illustrative cards to stimulate children's enthusiasm. The program schedule was arranged to take place from 15.00 to 18.00 WIB over one week, with each meeting designed to balance between practice, explanation, and playful activities. The planning stage ensured that the intervention was systematic, measurable, and feasible in the local context.

Implementation Stage

The implementation stage was the core of the program where learning activities were carried out directly with the students. Each session began with a short motivational introduction to build students' readiness and interest. In mathematics, students were first given simple problems to measure their initial skills, followed by exercises that gradually increased in complexity. For reading, children were engaged in activities such as recognizing letters, spelling syllables, and forming short words, with continuous guidance from tutors. The researchers ensured that the learning atmosphere was enjoyable by incorporating games and interactive discussions, so that students did not feel pressured. During this stage, students showed gradual progress, such as increased willingness to answer questions, improved confidence in reading, and better accuracy in solving arithmetic problems. The tutors also provided individual assistance to students who still struggled, so that no child was left behind.

Reflection Stage

Reflection was conducted at the end of each session to assess both students' experiences and tutors' teaching strategies. The reflection process involved short discussions where students were encouraged to express what they enjoyed, what they found difficult, and what new things they had learned. The tutors then provided positive reinforcement and motivation, helping students to see their own progress. Reflection also enabled the tutors to adjust their approaches for the following sessions, for example by giving more practice on multiplication for students who still had difficulties, or simplifying reading exercises for those who were not yet fluent. This stage not only helped to refine the

learning process but also built a closer relationship between students and tutors, which in turn increased students' openness and willingness to participate.

Evaluation Stage

The final stage was evaluation, which aimed to measure the outcomes of the program in a structured manner. Students were given a post-test in both arithmetic and reading, which was then compared to their performance at the beginning of the program. The evaluation criteria included accuracy in solving basic operations, fluency in reading, active participation during lessons, and the level of enthusiasm displayed by the students. The results showed improvements in several aspects: more students were able to complete arithmetic problems independently, reading fluency increased, and their confidence in learning was visibly higher. Qualitative evaluation also indicated that students felt more motivated and enjoyed the learning process, as observed from their consistent attendance and positive responses during activities. This stage provided evidence that the service learning method had effectively addressed the learning needs of children in Gampong Siron while simultaneously strengthening collaboration between the academic team and the local community.

RESULTS AND DISCUSSION

Results

The implementation of the community service program using the service learning approach consisted of several stages.

Observation Stage

Prior to the learning assistance, the research team conducted observations at PAUD Bungong Siron on January 30, 2025. This step aimed to understand the students' learning process, study habits, character, learning difficulties, and overall abilities. During this stage, the researchers also carried out initial discussions in the form of questions and answers regarding students' challenges in understanding mathematics. The students were encouraged by being shown practical examples of mathematics in daily life, which helped foster a sense of relevance and initial interest.

Figure 1. Observation and initial discussions with students

Planning and Preparation Stage

Based on the findings, the students were grouped according to their age and learning level. At this point, the team designed tailored activities, including reading and numeracy exercises, while also setting learning goals. The division into groups was intended to accommodate students' diverse abilities and ensure a more effective learning process.

Figure 2. Group division and instructional preparation

Implementation Stage

The learning sessions were conducted through creative and engaging activities to increase students' motivation. The children showed enthusiasm and enjoyment, gradually gaining confidence in reading and solving mathematical problems independently. Learning by playing creatively was found to be effective in developing early numeracy skills, enhancing memory, and fostering stronger conceptual understanding of mathematics. Students were given problems involving addition, subtraction, multiplication, and division, first without guidance and later with explanations. The process of jointly reviewing answers helped reinforce understanding and correct misconceptions.

Figure 3. Teaching and learning activities during service program

Reflection Stage

During the sessions, students initially appeared shy and reluctant to express their difficulties. However, after building trust and a supportive atmosphere, they became more open to sharing their learning challenges. The results showed that students with lower abilities developed a stronger interest in learning when they were taught patiently, without pressure, and through engaging approaches. This indicated that individualized support and empathy significantly contributed to their progress.

Figure 4. Student-tutor reflection and interaction

Evaluation Stage

After the series of learning assistance sessions, a post-test was conducted to evaluate improvement. The results indicated that students demonstrated better mastery of mathematical concepts and increased motivation to learn. Teachers also confirmed these positive changes, noting that students were more confident in reading and performing basic arithmetic. Nevertheless, some students continued to experience delays in comprehension, which highlights the need for continuous involvement from teachers and parents in supporting these children.

Overall, the service program successfully enhanced students' motivation and abilities in reading and numeracy. The findings reinforce that community-based learning assistance, when aligned with the service learning model, is effective in fostering both academic skills and positive attitudes toward learning.

Discussion

The implementation of the tutoring program in Gampong Siron emphasized the importance of creating a joyful and engaging learning environment for children. Fun learning activities are a sign of effective learning because they encourage direct student involvement

and accommodate their characteristics and needs. One essential principle in teaching numeracy is to make the learning process enjoyable by involving children in simple mathematical exercises such as addition, subtraction, or finding differences, while also engaging them in playful activities that stimulate creativity and participation (Rahmawati et al., 2022). This interactive approach motivated the children and encouraged them to see learning as an enjoyable process rather than a burden.

The tutoring sessions revealed that many students in Gampong Siron still struggled with basic mathematical operations, particularly multiplication and division. These difficulties often stemmed from the lack of strong foundational skills acquired during early childhood, leading to perceptions of mathematics as a difficult subject. As explained by Faristiana et al. (2023), both internal and external factors influence student achievement, including health, intelligence, motivation, and environmental conditions. In this program, individualized support allowed students to ask questions more freely and receive tailored explanations, which gradually built their confidence in tackling mathematical problems.

Another important aspect observed was the role of learning motivation. Students with higher interest and enthusiasm demonstrated faster progress compared to those with low motivation. However, limited parental attention and the lack of supportive environments at home or among peers hindered the development of strong learning interest. This aligns with the argument of Jemadi (2023), who emphasizes that guidance and tutoring are crucial for addressing student learning problems by creating a conducive atmosphere that prevents academic difficulties. In this context, the tutoring program functioned not only as an academic intervention but also as a motivational stimulus that helped cultivate positive attitudes toward learning.

The findings also highlight that the challenges faced by children with low academic abilities cannot be separated from broader social and environmental factors. Family background, parental guidance, and socio-economic conditions strongly affect children's learning readiness and achievement (Hidayati et al., 2022).. The tutoring initiative in Gampong Siron demonstrated that consistent mentoring, combined with encouragement and tailored teaching methods, can significantly help students with low abilities achieve academic improvements.

Overall, this community service program showed that tutoring is an effective strategy to address learning difficulties among early childhood learners. Beyond measurable academic improvements, such as the ability to solve basic arithmetic problems and read more fluently,

the program also fostered behavioral changes like increased discipline, willingness to participate, and greater confidence. These outcomes align with the broader goal of community-based education to bring about social transformation by nurturing a generation with stronger foundational skills and higher motivation to learn (Widad et al., 2022).

CONCLUSION

The tutoring program successfully improved children's reading and numeracy skills, enabling them to read and solve basic math problems more accurately. The activities proved effective in supporting students with low learning motivation and abilities, making it easier for them to engage with lessons both in school and beyond. Overall, this community service initiative fostered positive changes in learning behavior and contributed to building a stronger foundation for children's future education.

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