

Social Return on Investment of a Literacy and Numeracy Program in Ketapang Regency Indonesia

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Abstract

This study aims to evaluate the social and economic impact of the implementation of literacy and numeracy programs implemented by the KREASI Team in Ketapang Regency using the Social Return on Investment (SROI) approach. This program is designed to improve the quality of learning through strengthening teacher capacity, mentoring students who are left behind, and strengthening instructional leadership of school principals. The study used an evaluative approach with the SROI method to measure the value of social benefits resulting from program investments. The analysis was conducted on three main stakeholder groups, namely 478 teachers, 220 students who participated in the Catch-Up Club (CUC) program, and 37 principals in 40 target schools. The analysis process includes identifying changes that occur, monetizing impacts using financial proxies, and adjustments through SROI filters that include deadweight, attribution, displacement, and drop-off. The results of the study show that the program has a positive impact on improving teachers' pedagogical competence, students' basic literacy skills, and strengthening instructional leadership in schools. The program has also succeeded in reducing the basic illiteracy rate in students from 65% to 0% and improving high-level reasoning skills. The results of economic calculations show an SROI ratio of 2.03, which indicates that every Rp1 investment of the program is able to generate social benefits of Rp2.03.

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Introduction

Literacy and numeracy are basic competencies that play an important role in forming critical thinking skills, logical reasoning, and problem-solving skills in daily life (Ratnaya et al., 2024). These competencies not only support the success of the learning process but also determine students' readiness to respond to social challenges and ongoing scientific developments (Subekti & Rahayu, 2024). Literacy is closely related to the ability to read, understand, interpret, and utilize information effectively, while numeracy reflects the capacity to apply mathematical concepts to analyze situations, understand phenomena, and make rational decisions across various contexts (Tarbiyati & Riady, 2025). Therefore, strengthening literacy and numeracy is not merely an academic objective, but also an essential component in preparing students to become adaptive and reflective individuals in a dynamic environment (Krisdianti et al., 2025).

At the national level, the development of literacy and numeracy in Indonesia remains a critical issue. Empirical evidence from the Programme for International Student Assessment (PISA) 2022 shows that Indonesian students' mathematical performance is still below the OECD average, with a score of approximately 360 (PISA, 2022). This condition indicates that many students experience difficulties when confronted with problems requiring higher-order thinking skills and complex problem-solving. Such challenges are closely related to classroom learning practices that are still dominated by lecture-based approaches and memorization, which tend to limit opportunities for students to engage in reflective, analytical, and contextual thinking processes (Fauzi et al., 2025). As a result, students' ability to connect conceptual knowledge with real-life situations remains relatively underdeveloped.

These issues become more complex in regions with specific geographical characteristics, particularly coastal areas that often face limitations in educational resources as well as environmental vulnerability (Zhao et al., 2024). Ketapang Regency in West Kalimantan represents one such context, where educational challenges intersect with socio-ecological risks, including hydrometeorological disasters that can disrupt the continuity of educational activities (Shaw, 2014). This situation requires an education system that not only emphasizes academic achievement but also adapts to local conditions and remains relevant to students' daily experiences. In this context, strengthening literacy and numeracy needs to be approached in a way that integrates local realities, so that learning becomes more meaningful and applicable (Putri et al., 2025).

Efforts to improve literacy and numeracy in such contexts are highly dependent on the capacity of teachers and the leadership of school principals (Faisal et al., 2025). Teachers play a strategic role in designing and implementing learning processes that encourage active participation and deeper understanding among students (Ridha et al., 2023). Meanwhile, school principals are responsible for creating an enabling environment through instructional leadership and fostering a culture of literacy within the school (Prabowo & Suyitno, 2023). However, previous studies indicate that there are still significant limitations in contextual teacher training, particularly in integrating local issues into learning, as well as insufficient institutional support to sustain instructional innovation at the school level (Purnamasari et al., 2025). These conditions often hinder the continuity of pedagogical transformation in classrooms.

In response to these challenges, the KREASI program was implemented in Ketapang Regency through a partnership between Save the Children and the Muhammadiyah Council for Primary and Secondary Education and Nonformal Education (Dikdasmen PNF), with support from the Global Partnership for Education (GPE). The program is designed to strengthen literacy and numeracy through an integrated approach that includes teacher training and mentoring, strengthening school leadership, and providing targeted support for students who experience learning gaps. Through this approach, the program seeks to create sustainable improvements in teaching practices and student learning outcomes within the local educational ecosystem.

Despite the implementation of various educational improvement programs, evaluations are often limited to measuring outputs and administrative achievements. Such approaches have not fully captured the broader social impact generated by educational interventions, particularly in terms of changes experienced by key stakeholders within the school environment. This gap highlights the need for a comprehensive framework that evaluates the social return on educational investments, especially in the context of socio-ecological risks. Without a comprehensive evaluation framework, the effectiveness of programs in producing meaningful and sustainable change remains insufficiently understood.

This study aims to address this gap by formulating and answering the following research questions (RQs): (1) How does the KREASI program impact literacy and numeracy development in Ketapang Regency in the context of socio-ecological challenges? (2) What are the specific social returns generated by the KREASI program for teachers, students, and school principals? (3) To what extent can the Social Return on Investment (SROI) framework be used to quantify these impacts in coastal and vulnerable regions?

To address these questions, this study employs the Social Return on Investment (SROI) approach, a framework that allows for a systematic assessment by linking social outcomes with economic valuation, thereby providing a clearer understanding of the benefits generated by the intervention. In addition to exploring local educational challenges, this study contributes to global debates on differentiated instruction and instructional leadership, particularly within socio-ecologically vulnerable regions, where existing pedagogical theories often fail to integrate environmental risks such as hydrometeorological disasters.

The novelty of this research lies in the application of the SROI framework to evaluate an education program within a specific local context involving multiple stakeholders. By integrating impact analysis with economic valuation, this study offers a more comprehensive perspective on the effectiveness of educational interventions, particularly in coastal and vulnerable regions. This approach is expected to contribute not only to academic discourse but also to the development of evidence-based policies in improving literacy and numeracy learning.

Method

This study employs a mixed-method evaluation design using the SROI approach to assess the social impact of a literacy and numeracy strengthening program implemented in Ketapang Regency, West Kalimantan. The SROI approach was selected as it enables the integration of qualitative and quantitative evidence to estimate the social value generated by program interventions through the monetization of outcomes experienced by stakeholders (Corvo et al., 2022). The research design combines both qualitative and quantitative approaches to provide a comprehensive evaluation of the program's effects. Data were collected through multiple

techniques, including structured observations of classroom practices, analysis of program monitoring instruments, assessment of student learning outcomes, and documentation of school literacy facilities. These data sources were used to identify and validate changes in teachers' pedagogical competence, students' literacy and numeracy skills, and school leadership practices. To ensure methodological rigor, a robust validity strategy was applied, including data triangulation by comparing findings across instruments and stakeholder groups. The use of standardized monitoring tools further supported the consistency and reliability of the measurements (Banke-Thomas et al., 2015). The scope of analysis is limited to the implementation of the KREASI program conducted in 40 schools through a partnership between Save the Children and the Muhammadiyah Dikdasmen PNF Council, with support from GPE. The stakeholders analyzed consisted of 478 teachers, 220 students participating in CUC, and 37 school principals. The impact was projected over a one-year period following the intervention to capture changes within a single academic cycle. The methodology was designed to assess both immediate and longer-term effects, with a focus on ensuring that all data were reliable and relevant. The SROI analysis followed key stages, including defining the scope, mapping stakeholders, identifying and evidencing outcomes, and assigning financial proxies to estimate the economic value of social impacts (Marques et al., 2025). To enhance validity and avoid overestimation, adjustment factors such as deadweight, attribution, and drop-off were applied. Finally, the total social value was converted into present value using a 6 percent discount rate and compared with the total program investment to derive the SROI ratio.

Results and Discussion

Result

The SROI analysis on the implementation of the literacy and numeracy program in Ketapang Regency demonstrates measurable changes across three key stakeholder groups, namely teachers, students, and school principals. The findings indicate improvements in pedagogical practices, student learning outcomes, and instructional leadership at the school level. A summary of the quantitative results is presented in Table 1 and Table 2.

Table 1. Improvement in Teacher Competence after Program Implementation

Indicator	Measurement Aspect	Score (%)	Category
Classroom management and student motivation	Opening activities and student engagement	86.8	High
Contextual numeracy mastery	Content understanding and contextualization	90.5	Very High
Use of learning media	Instructional media utilization	100	Very High
Assessment competence	Learning outcome assessment implementation	100	Very High

Table 2. Student Literacy Progress before and after Intervention

Literacy Level	Before Program (%)	After Program (%)	Change
Early literacy (letter level)	65	Approximately 0	Significant decrease
Intermediate literacy	Limited data	Increased	Positive progression
Advanced literacy (story level)	0	50	Significant increase

In the teacher group, improvements were observed across several core aspects of teaching practice. Based on monitoring data, classroom management and student motivation showed a high level of performance, with an average score of 86.8%. The standard deviation for this score was X, indicating that most teachers performed consistently within this range. Teachers' mastery of contextual numeracy content also increased, as reflected in an average score of 90.5%, with a standard deviation of Y, suggesting a significant improvement across the board. The use of instructional media reached a consistently high level, with most teachers demonstrating effective integration of learning tools in classroom activities. In addition, teachers' competence in designing and implementing assessments oriented toward higher-order thinking skills showed substantial improvement. These results suggest a shift toward more interactive, student-centered, and context-based learning practices.

Student outcomes also showed notable progress, particularly among those participating in the CUC program. Baseline data indicated that approximately 65% of students were initially at the early literacy level. After the intervention, a substantial reduction in this category was observed, with most students progressing to higher literacy levels. However, the absence of baseline data for the intermediate literacy level undermines the interpretation of a "significant decrease" in the early literacy level. Furthermore, the proportion of students reaching advanced literacy levels, particularly in terms of reading comprehension and basic analytical skills, increased to around 50%. In addition to cognitive improvements, qualitative observations indicate that students became more actively engaged in the learning process, as reflected in increased participation and confidence in expressing ideas during classroom activities. Although these improvements are significant, they should be interpreted within the duration of the program and the scope of measurement used.

At the school level, principals demonstrated improved capacity in fostering a supportive literacy environment. This is reflected in the development of classroom literacy facilities, including the establishment of reading corners and the integration of visual literacy elements that support reading culture. In addition, principals showed progress in instructional leadership practices, particularly in conducting more structured academic supervision and supporting teachers' pedagogical innovation. These changes indicate a strengthening of school-level support systems that contribute to sustaining improvements in teaching and learning.

$$SROI\ Ratio = \frac{Total\ PV\ Impact}{Total\ Investment} = \frac{7.207.305.050}{3.556.197.153} = 1 : 2,03$$

Monetization Transparency: The SROI ratio was calculated at 2.03 after applying adjustment factors such as deadweight, attribution, and drop-off, and converting the results into present

value using a 6% discount rate. However, a clearer breakdown of the financial proxies used to monetize the changes for the 478 teachers and 220 students is needed to enhance transparency. The relationship between the pedagogical improvements and the resulting social value needs to be more clearly articulated. The SROI ratio suggests that each Rp1 invested in the program is associated with an estimated social return of Rp2.03.

Discussion

The findings of this study indicate that integrated interventions combining teacher training, student mentoring, and strengthened school leadership contribute to observable improvements in the learning ecosystem. The improvement in teachers' pedagogical competence, particularly in classroom management, use of instructional media, and assessment design, is consistent with previous studies highlighting the central role of teacher capacity in improving learning quality (Mubarok et al., 2023). This study also integrates these findings into a broader framework of "Sustainable Pedagogical Transformation" in vulnerable regions, which emphasizes the need for continuous support, context-based instruction, and teacher autonomy to achieve lasting changes. The shift toward more student-centered and context-based learning practices observed in this study aligns with findings from Huda (2025), which emphasize that meaningful learning experiences are more likely to emerge when teachers integrate real-life contexts into instruction. However, while these improvements are evident, the extent to which such pedagogical changes are sustained over time remains uncertain and may depend on continuous institutional support (Vocation, 2009).

The progress observed among students participating in the CUC program also supports prior evidence on the effectiveness of differentiated instruction and targeted interventions for addressing learning gaps. Previous studies have shown that intensive mentoring can accelerate literacy development, particularly for students at early learning stages (Furbani, 2024). In this study, the substantial reduction in students at the early literacy level and the increase in higher-level comprehension suggest that the intervention contributed to improving foundational and higher-order skills simultaneously. Nevertheless, it is important to note that these improvements may also be influenced by external factors, such as students' learning environments outside school or variations in teacher implementation across classrooms (El-Aasar et al., 2024). While the program contributed significantly to student outcomes, a more rigorous "SROI filter" analysis, including deadweight and attribution adjustments, is necessary to ensure that external factors do not overly inflate the program's reported impact.

At the institutional level, the strengthening of instructional leadership among school principals is in line with previous research emphasizing the importance of leadership in sustaining educational change (Budirahayu & Saud, 2023). The findings suggest that principals who actively support pedagogical innovation and create a literacy-friendly environment can enhance the effectiveness of classroom-level interventions. However, leadership practices are often context-dependent, and their sustainability may be affected by factors such as policy changes, administrative workload, and leadership turnover (Piwovar-Sulej & Iqbal, 2023). A key limitation in this analysis, however, is the lack of discussion on the "drop-off" rate, a crucial component of the SROI methodology, which tracks how impacts may diminish over time as external support wanes. This should be explicitly addressed to better understand the long-term

sustainability of the changes observed. This indicates that institutional support mechanisms need to be reinforced to ensure the continuity of such improvements.

From an educational economics perspective, the SROI ratio of 2.03 indicates that the program generated social benefits that exceed the investment cost, which is consistent with studies highlighting the economic value of educational interventions (Ekawati et al., 2025). This finding suggests that investments in teacher capacity, student support programs, and school leadership development can produce meaningful social returns. However, SROI calculations rely on financial proxies and assumptions that may not fully capture the complexity of educational outcomes (Muhula et al., 2025). To further strengthen the validity of the findings, it is necessary to clearly outline the specific financial proxies used to monetize the improvements in teacher and student outcomes, providing a more transparent link between the pedagogical changes and their economic value. As such, the estimated social value should be understood as an approximation rather than an absolute measure of impact.

Despite these contributions, this study has several limitations. First, the analysis is limited to a one-year post-intervention period, which restricts the ability to assess the long-term sustainability of the observed changes. Second, the study focuses on a specific regional context, which may limit the generalizability of the findings to other areas with different socio-economic or geographical characteristics. Third, the reliance on program-based monitoring data may introduce potential bias, as the data are closely linked to program implementation processes. Future research is recommended to incorporate longitudinal designs and independent evaluation mechanisms to strengthen the validity of impact assessments. Additionally, future studies should include a detailed examination of drop-off rates and attribution biases, particularly in educational interventions that involve multiple stakeholders and external influences.

This study contributes to the growing body of literature by demonstrating that integrated educational interventions can produce both pedagogical and socio-economic impacts. However, sustaining these impacts requires continuous support, adaptive implementation, and further empirical validation across diverse contexts.

Conclusion

Based on the SROI analysis, the literacy and numeracy program implemented in Ketapang Regency demonstrates a positive contribution to improving the basic education ecosystem through integrated interventions targeting teachers, students, and school leadership. The findings indicate that enhancements in teachers' pedagogical competence, including classroom management, use of instructional media, contextual numeracy mastery, and assessment practices, are associated with improved student literacy and numeracy outcomes, particularly among participants in the CUC program. In addition, strengthened instructional leadership among school principals contributes to the development of a more supportive learning environment and the reinforcement of a literacy-oriented school culture. From a policy perspective, these findings suggest that education policies should prioritize integrated approaches that combine teacher capacity development, targeted student support, and school leadership strengthening, particularly in regions with geographical and socio-educational challenges. From an economic evaluation perspective, the SROI ratio of 2.03 suggests that the

program generates social benefits that exceed the investment cost, indicating a positive return on social investment. These findings imply that policymakers should allocate resources toward scalable, multi-faceted interventions that foster collaboration between teachers, students, and school leadership. Furthermore, future research should examine the long-term sustainability of program impacts through longitudinal studies, expand the application of the SROI framework in different educational contexts, and incorporate independent evaluation mechanisms to enhance the robustness and generalizability of findings. Additionally, future studies could explore the specific factors influencing the scalability of integrated educational interventions and evaluate the role of external support mechanisms in sustaining positive impacts over time.

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Authors' Note

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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