

Impacts of Kampus Mengajar Program on Elementary School Students' Literacy and Numeracy

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ABSTRACT

This research aims to examine whether or not there is impact of Kampus Mengajar program batch 7 in 2024 on strengthening students' literacy and numeracy learnings at a total of 37 elementary school in Sidoarjo region. Quantitative data was obtained through tests, that is, the results of pre-test and post-test of literacy and numeracy on class Minimum Competence Assessment, and analysed through normality and hypothesis tests. The normality test of the literacy pre-test shows 24 were normally distributed and 13 not; while the normality test of the literacy post-test confirms 20 were normally distributed and 17 not. The results of the normality test of the numeracy pre-test shows that 32 were normally distributed and 5 not; whereas the normality test of the numeracy post-test demonstrates 26 were normally distributed and 11 not. The hypothesis tests reveal that Kampus Mengajar program batch 7 in 2024 had impacts on strengthening literacy and numeracy learnings in 11 elementary schools, impacted only on the literacy learnings in 2 schools, impacted only on numeracy learnings in 15 schools, and did not do on neither literacy nor numeracy learnings in 9 schools. This research discovers that Kampus Mengajar program batch 7 in 2024 had a less significant impact on strengthening literacy and numeracy learnings among elementary school students in Sidoarjo region since it only affected a small number of the elementary schools. Furthermore, Kampus Mengajar program was more impactful on strengthening numeracy learnings compared to literacy learnings.

Keywords: Kampus Mengajar Program, Literacy, Numeracy, Literacy and Numeracy

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INTRODUCTION

The quality of education becomes the main indicator that shows how far a country gets ready to face challenges in 21st century. Therefore, the enhancement of students' basic competencies, especially in literacy and numeracy, has become a national priority agenda as reflected in the Merdeka Belajar policy initiated by the Ministry of Education, Culture, Research, and Technology (Ahmad, 2020). This is in line with the opinion of Zainudin et al. (2023) which states that improving literacy and numeracy at the elementary school level is an initial step in preparing students to face more complex learning in the next level of education.

Zainudin et al. (2023) explains that literacy in elementary school students includes the ability to access, understand, and use information, as well as to communicate ideas effectively in writing and verbally in everyday life. Literacy is defined as the ability to understand, use, evaluate, and reflect on written texts aiming to achieve personal goals, develop knowledge and potential, and participate in society (OECD, 2019). Literacy is not only about the ability to read and understand texts, but also about the capacity for critical and reflective thinking regarding the information received. Meanwhile, numeracy includes an individual's ability to understand,

interpret, and use mathematical concepts and operations in various real-life contexts (Barham et al., 2019). Meanwhile, Zainudin et al. (2023) state that numeracy is a form of literacy that focuses on an individual's ability to use numbers and mathematical operations to understand and analyse numerical information, both in text and in visual forms such as graphs and tables.

Despite many studies emphasizing the importance of literacy and numeracy, the reality shows that these basic skills still pose a significant challenge in the education system in Indonesia. This is reflected in the results of the National Assessment in recent years which indicated that the majority of students in Indonesia were still classified as 'in need of special intervention' in the aspects of literacy and numeracy (Sari & Arnidha, 2022). This condition is exacerbated by the disparity in teaching quality, limited resources in schools, and unequal access to education in various regions (Sukari & Nurachman, 2024). In addition, Iswara et al. (2022) showed that students' low achievement in numeracy is also caused by the lack of contextual and locally based learning approaches which connect mathematics with students' daily activities. Therefore, innovation is required in the implementation of learning that is contextual, collaborative, and adaptive to the dynamics of local needs.

In response to the situation, the government launched the Kampus Mengajar (KM) program, as one of the implementations of the Merdeka Belajar - Kampus Merdeka (MBKM; red: Independent Learning - Independent Campus) program, which aims to bridge the gap between higher education theory and learning practices at the educational unit level (Arifah & Madhani, 2022). Septiyani et al. (2024) state that the Kampus Mengajar program was presented as a systemic strategy to strengthen students' basic skills through the direct involvement of university students in teaching practices, which makes a tangible contribution to reduce disparities in educational achievement across regions. Through this program, university students were placed in elementary and secondary schools to assist teachers in the implementation of learnings, especially in the aspects of literacy and numeracy. The Guidebook of Kampus Mengajar explains that this program was specifically aimed at improving students' learning outcomes through active, inclusive, and adaptive learning methods, while still considering the local conditions and needs of the school (Direktorat Jenderal Pendidikan Tinggi, 2024).

Previous researches have shown that university students' contributions through Kampus Mengajar program did not only impact the elementary and secondary students, but also strengthen the professional capacity of teachers and the learning ecosystem in schools. According to Sudarso et al. (2023), Kampus Mengajar program was able to integrate educational-entertainment approaches in literacy and numeracy learnings, which has proven to enhance student active engagement. In addition, Arifah and Madhani (2022) found that the presence of university students in Kampus Mengajar program also had positive impacts on the improvement of teachers' pedagogical competencies through collaborative activities, such as lesson planning, creating teaching media, and strengthening formative assessments in the classroom. Septiyani et al. (2024) state that university students' involvement as teacher partners had encouraged an increase in student learning motivation, especially in schools that face limitations in teaching staff and learning resources. Noerbella (2022) notes that university students' involvement in the learning process contributed to increased student interaction, a variety of teaching methods, and the support of technology that was previously underutilized in the classroom. These findings indicate that Kampus Mengajar program did not only serve as a means to enhance literacy and numeracy, but also acted as a strategic intervention in building a more adaptive and collaborative learning culture in schools.

One important dimension that strengthens the effectiveness of this program is the utilization of technology in learning, which did not only serve as a teaching aid but also as a medium to enhance students' higher-order thinking competencies. Makarim et al. (2023) state that technology-based approach in Kampus Mengajar program did not only improve the results of students' Minimum Competence Assessment (known as AKM: *Asesmen Kompetensi Minimum*), but also significantly enhanced their logical and reflective thinking skills. Mumayizah et al. (2023) explain that the adaptation of technology in learning successfully increased teachers' digital capacity and accelerated the integration of technology in the learning

process, as well as encouraged students to think analytically and solved problems creatively. This is in line with the view of Elliott et al. (2021) that supports for the learning environment, including the role of adults and the use of digital media, had a positive correlation with the development of literacy and numeracy in elementary school students.

However, the success of Kampus Mengajar program cannot be generalized nationally without considering specific local contexts, including the socio-economic characteristics of schools, teacher readiness, and community involvement. Choi et al. (2022) explain that the implementation of educational programs should take into account the local social, cultural, and geographical contexts to achieve sustainable development goals in education. Therefore, empirical data-based studies are essential to measure impacts of Kampus Mengajar Program in a region.

This research aims to determine whether or not there is impact of Kampus Mengajar program batch 7 (KM 7) in 2024 on strengthening elementary school students' literacy and numeracy in Sidoarjo region. Thus, this research has strategic value in contributing both scientifically and practically to the development of primary education policies in Indonesia. This research also enriches the empirical literature on university student participation-based educational intervention models, which in the long term can be adopted as part of the national strategy for improving the quality of literacy and numeracy skills in elementary schools.

METHOD

This research uses a pre-experimental design with a one-group pretest-posttest design. In this design, measurements were taken twice, that is, before (pre-test) and after (post-test) the intervention. The intervention or treatment was the implementation of Kampus Mengajar program (KM) batch 7 carried out by groups of university students and field supervisors in each elementary school. The program included strengthening literacy and numeracy abilities, teaching strategies, mentoring, and applying Collaborative Action Plan (known as RAK: *Rencana Aksi Kolaborasi*). The researchers acted only as the collector of pre-test and post-test data of the elementary students (Sugiyono, 2019).

The research population is all elementary school students in Sidoarjo region as designated by the Ministry of Education, Culture, Research, and Technology as participants in the KM program batch 7. There were totally 53 elementary schools destined in Kampus Mengajar program batch 7 in Sidoarjo. However, not all schools can be used as research samples because there are obstacles related to data completeness. Therefore, the research sample was determined purposively, meaning only schools that had complete pre-test and post-test data. Based on these criteria, 37 elementary schools were obtained as research samples.

The research instrument consisted of literacy and numeracy questions developed by the Central Team of Kampus Mengajar program for the class Minimum Competence Assessment. The pre-test and post-test instruments each consisted of 20 questions in the form of matching, true-false, multiple choice, and complex multiple choice. These questions were prepared based on national guidelines at level 2 of grade 5 of the Kampus Mengajar program batch 7 (Isworo & Surindra, 2024).

The research procedure was carried out through several stages. First, secondary data in the form of scores of pre-test and post-test of literacy and numeracy from the elementary schools destined in Kampus Mengajar 7 program was collected. Second, the pre-test and post-test data was processed. The last, the data was analysed to determine the effectiveness of the Kampus Mengajar program.

Data analysis was conducted through normality test and hypothesis test. The normality test was used to determine the distribution of pre-test and post-test data using the Shapiro-Wilk test, considering that the sample size per school was less than 50 (Nurhasanah, 2019). If the data is normally distributed, the analysis continues with the paired sample t-test. Conversely, if the data is not normally distributed, the Wilcoxon Signed Rank Test is used. The hypothesis being tested is H_0 : there is no significant difference between pre-test and post-test scores for literacy and numeracy, and H_1 : there is a significant difference between pre-test and post-test scores for literacy and numeracy. The criteria for decision making is that if the p-value < 0.05 , then H_0 is

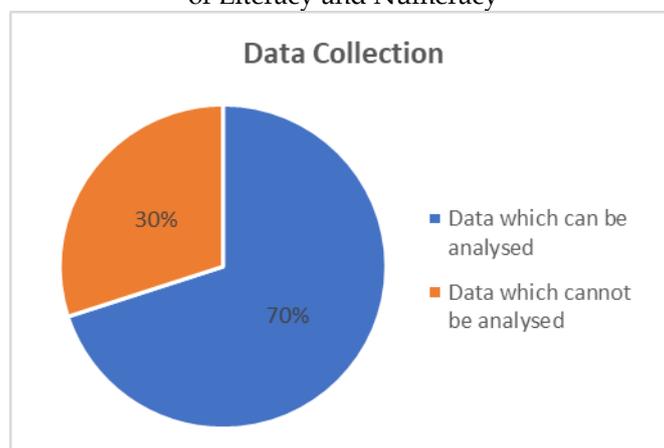
rejected and there is a significant difference, whereas if the p-value ≥ 0.05 , then H_0 is accepted and there is no significant difference (Nurhasanah, 2019).

The interpretation of the results is carried out by comparing the pre-test and post-test scores. If the post-test score is significantly higher than the pre-test score, then Kampus Mengajar program batch 7 is considered effective in improving students' literacy and numeracy skills. Conversely, if there is no significant difference, then the implementation strategy of the program needs to be reevaluated.

RESULT AND DISCUSSION

Several findings were obtained based on the analysis of the pre-test and post-test scores for literacy and numeracy of class Minimum Competence Assessment. From the 53 folders available in the Google Drive link of the final report submitted to the Department of Education and Culture Sidoarjo, there were 37 folders or 70% of the pre-test and post-test scores of Minimum Competence Assessment dealing with literacy and numeracy that can be analysed. Meanwhile, 16 other folders or 30% cannot be analysed due to various factors. Here is a diagram that illustrates the results of the data collection.

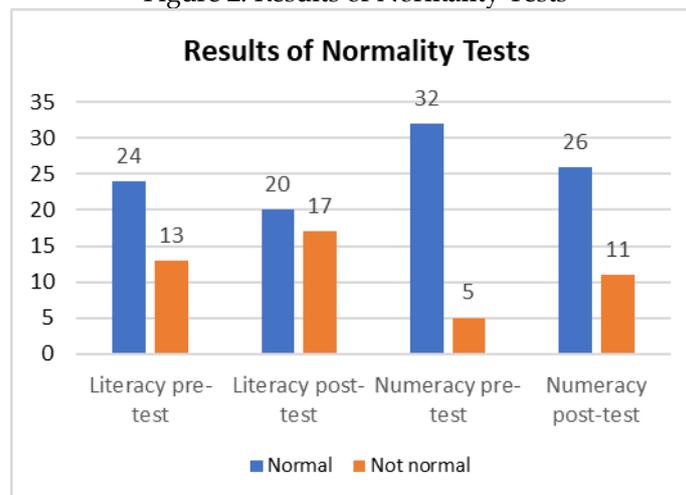
Figure 1. Data Collection of Pre-test and Post-test of Minimum Competence Assessment Results of Literacy and Numeracy



The factors that caused the 16 data to be unanalysable included 9 folders with no documents of pre-test and post-test results, 1 folder with a pre-test score of 0 (zero) for all, 3 folders with post-test scores of 0 (zero) for all, 1 folder with a score exceeding the name of the student, 1 folder containing only post-test literacy scores, and 1 folder containing only post-test scores.

The statistical data in this study was analysed using IBM SPSS 22 application. First, the researchers used the Shapiro-Wilk test to determine whether the data being tested is normally distributed or not. The Shapiro-Wilk test was chosen as a normality test because the sample size for each elementary school was less than 50 (Sundayana, 2018). The results of the normality test using the Shapiro-Wilk test with IBM SPSS 22 are presented in Figure 2 below.

Figure 2. Results of Normality Tests



Based on Figure 2 above, it is shown that the results of the normality test of the literacy pre-test from 37 elementary schools show that there were 24 data that are normally distributed while 13 data were not normally distributed. The results of the normality test of the literacy post-test show that there were 20 data points that are normally distributed while 17 data points were not normally distributed. The results of the normality test of the numeracy pre-test showed that there were 32 data points that are normally distributed while 5 data points were not normally distributed. The results of the normality test of the numeracy post-test showed that there were 26 data points that are normally distributed while 11 data points are not normally distributed.

Furthermore, based on the normality tests, the researchers determined whether to use parametric or non-parametric tests as hypothesis tests in this research. Parametric tests are used if the data is normally distributed, while non-parametric tests are used if the data is not normally distributed. The parametric tests that can be used are the paired sample t test or the independent sample t test. Meanwhile, the non-parametric tests that can be used are the Wilcoxon test or the Mann Whitney U test. The paired sample t test aims to determine whether there is a difference in the average of two samples (two groups) that are paired or related. On the other hand, the independent sample t-test aims to determine the difference in means between two unpaired samples (Nurhasanah, 2019).

Hypothesis testing was used to determine the effect of Kampus Mengajar program batch 7 on strengthening literacy and numeracy learnings among students in each elementary school of KM 7 in Sidoarjo. The hypotheses in this research are:

H₀1: There is no effect of the Kampus Mengajar program batch 7 in 2024 on strengthening the literacy learning of elementary school students in Sidoarjo region.

Ha1: There is effect of the Kampus Mengajar program batch 7 in 2024 on strengthening the literacy learning of elementary school students in Sidoarjo region.

H₀2: There is no effect of the Kampus Mengajar program batch 7 in 2024 on strengthening the numeracy learning of elementary school students in Sidoarjo region.

Ha2: There is effect of the Kampus Mengajar program batch 7 in 2024 on strengthening the numeracy learning of elementary school students in Sidoarjo region.

The basis for decision-making in paired sample t-tests and independent sample t-tests is that if the Sig. (2-tailed) value < 0.05, then H₀ is rejected and Ha is accepted. Whereas if the Sig. (2-tailed) value > 0.05, then H₀ is accepted and Ha is rejected (Nurhasanah, 2019). Table 1 in the following demonstrates the results of hypothesis tests of the Minimum Competence Assessment for both literacy and numeracy in each of the 37 elementary schools.

Table 1. Results of Hypothesis Tests

Elementary School (ES)	Significance value in literacy	Conclusion	Significance value in numeracy	Conclusion
ES 1	0.229	No effect	0.093	No effect
ES 2	0.105	No effect	0.212	No effect
ES 3	0.001	Effect	0.001	Effect
ES 4	0.000	Effect	1.000	No effect
ES 5	0.172	No effect	0.747	No effect
ES 6	0.010	Effect	0.000	Effect
ES 7	0.056	No effect	0.000	Effect
ES 8	0.919	No effect	0.121	No effect
ES 9	0.104	No effect	0.000	Effect
ES 10	0.058	No effect	0.344	No effect
ES 11	0.760	No effect	0.830	No effect
ES 12	0.721	No effect	0.292	No effect
ES 13	0.128	No effect	0.000	Effect
ES 14	0.018	Effect	0.000	Effect
ES 15	0.051	No effect	0.000	Effect
ES 16	0.183	No effect	0.029	Effect
ES 17	0.048	Effect	0.166	No effect
ES 18	0.012	Effect	0.000	Effect
ES 19	0.001	Effect	0.000	Effect
ES 20	0.812	No effect	0.560	No effect
ES 21	0.000	Effect	0.000	Effect
ES 22	0.810	No effect	0.002	Effect
ES 23	0.958	No effect	0.583	No effect
ES 24	0.998	No effect	0.000	Effect
ES 25	0.348	No effect	0.002	Effect
ES 26	0.056	No effect	0.000	Effect
ES 27	0.042	Effect	0.001	Effect
ES 28	0.736	No effect	0.000	Effect
ES 29	0.442	No effect	0,001	Effect
ES 30	0.774	No effect	0.000	Effect
ES 31	0.126	No effect	0.006	Effect
ES 32	0.046	Effect	0.000	Effect
ES 33	0.133	No effect	0.000	Effect
ES 34	0.012	Effect	0.000	Effect
ES 35	0.048	Effect	0.000	Effect
ES 36	0.354	No effect	0.000	Effect
ES 37	0.000	Effect	0.000	Effect

Table 1 shows that Kampus Mengajar program batch 7 in 2024 had impacts on strengthening literacy and numeracy learnings in 11 elementary schools in Sidoarjo region. In

addition, the Kampus Mengajar program batch 7 impacted on the strengthening of literacy learnings only in 2 schools, and it impacted the strengthening of numeracy learnings only in 15 schools. Furthermore, the KM 7 program did not affect literacy and numeracy learnings in 9 schools. This is illustrated in Figure 3 as follows.

Figure 3. Impacts of KM 7 Program on Literacy and Numeracy

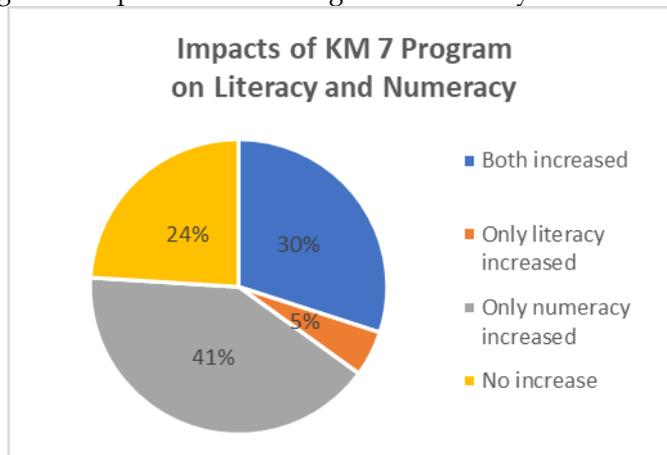


Figure 3 shows that the KM 7 program only had a 30% impact on the improvement of literacy and numeracy learnings. As much as 24% had no impact at all on the improvement of literacy and numeracy learnings in several elementary schools. As much as 41% affected the improvement of numeracy learnings only and the remaining 5% affected the improvement of literacy learning only. In other words, Figure 3 also shows that the KM 7 program had a greater impact on strengthening numeracy compared to strengthening literacy. Table 1 shows that there was a total of 26 elementary schools that experienced an increase in numeracy scores and 13 schools that experienced an increase in literacy scores. The comparison of the two can be seen in the Figure 4 below.

Figure 4. Comparison of the Increase between Literacy and Numeracy

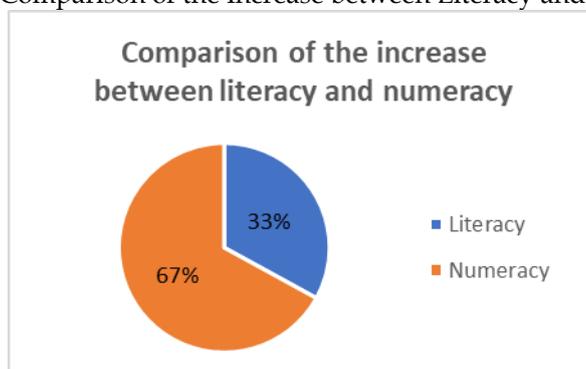


Figure 4 shows that the KM 7 program significantly had a greater impact on strengthening the numeracy learnings of elementary school students in Sidoarjo region.

DISCUSSION

Literacy means the competence with which a person can understand, evaluate, utilize, and engage with texts to become part of society, achieve personal goals, and develop knowledge and potential, while numeracy is needed to access, utilize, interpret, and communicate mathematical information and ideas to control and engage with mathematical requirements in various situations that occur in a person's life (PIAAC Literacy Expert Group and Murry in Choi et al., 2022). Literacy and numeracy skills are basic skills needed by elementary school students to meet the demands of the 21st century (Zainudin et al., 2023). That is why Kampus Mengajar program was first launched during the Covid-19 pandemic to address the significant learning loss (Direktorat Sekolah Dasar; Direktorat Jenderal Pendidikan Anak Usia Dini, Pendidikan Dasar, dan Pendidikan Menengah; Kementerian Pendidikan,

Kebudayaan, Riset, dan Teknologi, 2021) and to enhance the variety of literacy and numeracy teaching methods (Kampus Merdeka; Kemendikbud, 2024).

Based on the quantitative analysis of pre-test and post-test results of literacy and numeracy of the class Minimum Competence Assessment, it is found that the impacts of the KM 7 program on elementary school students in Sidoarjo region were overall not significant because the percentage of elementary schools that experienced an increase in literacy and numeracy scores of class Minimum Competence Assessment was only 30% (occurring in 11 elementary schools). In addition, the results of the quantitative analysis also show that the KM 7 program had an impact on literacy only in 2 elementary schools (5%), had an impact on numeracy only in 15 elementary schools (41%), and had no impact on strengthening either literacy or numeracy in 9 schools (24%). These results reflect that the KM 7 program had a significantly greater impact on strengthening numeracy learning compared to literacy. This can be explained by several factors, including the higher motivation of students in learning numeracy because it is considered close to everyday practical needs, such as counting money or measuring (Zainudin et al., 2023). In addition, numeracy learning in the KM program tends to use concrete and contextual media, while literacy relied more on text and reading comprehension that demanded higher cognitive abilities (Choi et al., 2022). Another factor that also influenced was teacher involvement, in which teachers in some schools were more active in supporting numeracy activities compared to literacy, resulting in relatively higher numeracy achievement (Noerbella, 2022).

The findings above are what were not visible in the results of previous relevant studies because those studies investigated the impact of Kampus Mengajar Program in an only elementary school. This research represents comprehensive results of the impacts of Kampus Mengajar program batch 7 in 2024 for Sidoarjo region; both literacy and numeracy learnings had increased in some elementary schools, only literacy had increased in other elementary schools, only numeracy had increased in some other schools, and even no increase in neither literacy nor numeracy abilities in the rest of the elementary schools. The findings of this current research, which show an increase in literacy and numeracy skills in 11 elementary schools, confirm the research of Makarim et al., (2023) which states that there had been an increase in the percentage of students answering correctly in the class Minimum Competence Assessment at SDN Kamanisan and the research of Noerbella (2022) which shows that the Kampus Mengajar batch 2 program at SDN Pasirangin 01 proved an increase in literacy and numeracy competencies of fifth-grade students. In addition, the findings that this research proves an increase in literacy skills in 13 elementary schools are in line with another study that also shows a significant improvement in literacy skills of the students after participating in the Kampus Mengajar program, with an average pre-test score of 52.85 and an average post-test score of 87.14 (Septiyani et al., 2024).

The findings of this research have important implications for education policy, particularly in the evaluation of the Kampus Mengajar program. The fact that numeracy had improved more than literacy indicates the need for more contextual, innovative, and engaging literacy learning strategies. Kampus Mengajar programs in the future should emphasize collaboration between teachers and university students in developing creative literacy methods, for example through thematic reading, digital literacy, or project-based literacy. In addition, the results of this research can provide input for the Department of Education and Culture in the region to formulate policies for supervising schools that still have low literacy achievements.

However, this research also has limitations. First, it only used secondary data in the form of pre-test and post-test results for literacy and numeracy, so it cannot directly illustrate the classroom learning process. Second, only 37 elementary schools had complete data out of a total of 53 schools, so the results of this research cannot be widely generalized. Third, variations in facilitator quality, levels of teacher support, and conditions of facilities are suspected to also influence the differences in results between schools.

To address the limitations, future research can use a mixed-methods approach to obtain a more comprehensive results, both quantitative (test results) and qualitative (class observations, interviews with teachers and students). Comparative research between regions is

also important to see whether the patterns of literacy and numeracy improvement are similar or different in other areas. Furthermore, the development of specific intervention models for literacy can be a focus for future research, considering that literacy has proven to be more challenging to improve compared to numeracy.

CONCLUSION

The results of this research indicate that Kampus Mengajar program batch 7 in 2024 had a less significant impact on strengthening literacy and numeracy learnings among elementary school students in Sidoarjo region because it only affected a small number of the elementary schools. This research also shows varying impacts of Kampus Mengajar program among the elementary schools. Of the 37 elementary schools whose data was successfully analysed, Kampus Mengajar program had a significant impact on improving literacy and numeracy learnings in only 11 schools (30%), had an impact on literacy only in 2 schools (5%), and had an impact on numeracy only in 15 schools (41%). The results of this research even showed no impact on the strengthening of neither literacy nor numeracy in the rest 9 elementary schools (24%). Overall, it can be concluded that Kampus Mengajar program batch 7 in Sidoarjo region was more effective in strengthening numeracy learnings (66%) for elementary school students compared to literacy learnings (34%). A potential for future research can cover the investigations of scrutinizing the literacy and numeracy activities done during Kampus Mengajar program in the elementary schools in which the students obtained an increase in the post-test scores of class Minimum Competence Assessment. This kind of research can surely help teachers and educators gain insights of some impactful literacy and numeracy learning strategies. It can also investigate the perceptions of some parties who get involved in Kampus Mengajar program, for instance, the perceptions of the principals, teachers at schools, the students, and the university students who join KM program. Additionally, upcoming research can examine the impacts of Kampus Mengajar program which is now held independently by certain universities (not held by the Ministry of Education and Culture anymore).

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