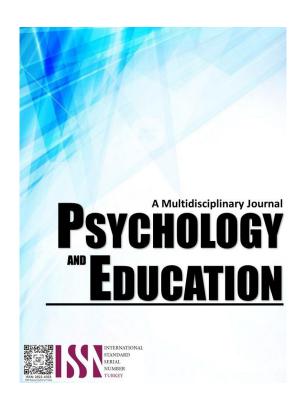
# EFFECTIVENESS ON THE IMPLEMENTATION OF MATHUSAY PROGRAMS AT BAGONG NAYON II ELEMENTARY SCHOOL: BASIS FOR INTERVENTION PROGRAM



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# Effectiveness on the Implementation of Mathusay Programs at Bagong Nayon II Elementary School: Basis for Intervention Program

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#### Abstract

This study evaluated the effectiveness of the Mathusay Programs implemented at Bagong Nayon II Elementary School during the 2024-2025 academic year. It focused on assessing students' performance through pre-test and post-test evaluations, examining proficiency levels, and exploring the correlation between program scores and Mathematics subject performance. The findings guided the development of an intervention program to enhance the Mathusay Programs. Pre-test results revealed students were categorized into four groups: Non-Numerate, Emergent, Average Numerate, and Above Average Numerate. Lower grades (I-III) had higher percentages of non-numerate learners (6.33%) compared to upper grades (3.70%), suggesting younger students faced more challenges in basic numeracy. Emergent learners represented 34.83% in the lower grades and 22.55% in the upper grades, indicating skill improvement over time. Average Numerate students comprised the majority, with significant growth in Above Average Numerate learners from 21.12% in lower grades to 40.32% in upper grades. Post-test data showed a similar trend, with decreased non-numerate learners (5.00% in lower grades and 1.57% in upper grades) and increased proficiency among Above Average Numerate learners (22.55% to 41.70%). A significant difference between pre-test and post-test results highlighted the program's impact. Proficiency levels were generally "Proficient" in Grades 1-4 (75.35%-79.15%) but declined to "Nearly Proficient" in Grades 5-6 (65.63%-69.55%), suggesting a need for additional support. However, no significant correlation was found between Mathusay scores and overall Mathematics proficiency. Recommendations include targeted interventions to sustain and enhance student performance across grade levels.

**Keywords:** numeracy skills, post-test, pre-test

#### Introduction

Good school leadership fosters nurturing learning environments that help children grow and develop. To cultivate such an environment, school heads must navigate and promote collaboration across the often-complex network of stakeholders: education authorities, teachers, students, parents, and local communities. School heads are the glue that holds everyone together.

The school head is the axis around which many elements of the school take precedence. He is responsible for every dimension of the system's operation, whether academic or administrative. The school head must be inclined to make almost all of the school's decisions. Thus, the school head must be a director, a planner, and a judgment-maker. A trustworthy school head would use collaboration as a working technique by establishing teams and smaller units of team members to examine proposals or tactics, school programs, and projects. It is up to the school head to be a strong team player and impact the quality of services offered.

Consequently, school heads must perform five functions to perform efficiently and effectively. These include planning (delineating priorities, determining goals, and implementing action-coordinated plans); staffing (scouting the right teacher with the necessary skills and expertise that are required for the success of the organization); organizing (assembling and successfully implementing to achieve the organizational objectives, to decide which tasks are to be carried out, how duties are to be divided, who communicates to whom and when actions are to be taken); controlling (tracking and reviewing performance and ensure that expectations are met and achieved); and, directing (responding positively after outcomes have been linked to future potential, the justification for difference, and trying to make teachers reasonably strengthen their productivity).

According to Cruz, et.al (2019), the school heads, as managers and leaders, set the direction the schools are going. They are responsible for the overall operation of the school. The tremendous changes in scope, variety of competencies, and necessary skills for managing the school make their functions more complex, diverse, and challenging. The thrust of the DepEd to empower school heads has increased and intensified. This major practice trend in current education reform aims to improve the quality of education services by the government and schools.

On the other hand, the ideal situation in management would be high goal attainment and good resource management because only through such a situation can high productivity be achieved. Hence, Shead (2019) defines management as 'effective utilization and coordination of resources such as capital, plant materials and labor to achieve defined objectives with maximum efficiency.' Management can only be defined by emphasizing effectiveness and efficiency. The whole process must be adhered to by the manager to meet the organizational objectives.

Nowadays, there are school heads, based on research, who need to be empowered and capacitated enough to lead and manage schools. These school heads can implement certain programs and projects, but efficiency and effectiveness are compromised.

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In consideration of the ideas above, the researcher was urged to conduct this study on the school heads' management of the effective implementation of school programs and projects about school performance to identify the various management practices employed by the school heads in leading and managing the school; to identify the efficiency and effectiveness of these practices used by the school heads in implementing school programs and projects, and to identify if these management practices of the school heads are instruments that could help the school improve its performance.

# **Research Questions**

This study aimed to determine the effectiveness on the implementation of Mathusay Programs at Bagong Nayon II Elementary School which served as basis for an intervention program during the school year 2024-2025. More specifically, it sought answers to the following questions:

- 1. What is the pre-test performance levels of students participating in the MATHUSAY programs;
- 2. What is the post-test performance levels of students participating in the MATHUSAY programs;
- 3. Is there any significant difference between students' pre-test and post-test performance in the MATHUSAY programs;
- 4. What is the proficiency level of the student participants in terms of Mathematics subject performance;
- 5. Is there any significant correlation between students' scores in the MATHUSAY programs and the proficiency level of the participants in terms of Mathematics subject performance; and
- 6. What intervention program could be developed to enhance the effectiveness of the MATHUSAY programs at Bagong Nayon II Elementary School?

# Methodology

## Research Design

This study used descriptive research design. According to Cresswell (2019), Descriptive research design explains phenomena, populations, or situations through behavior patterns. This is done through the collection of data via observation and experiments. Descriptive design research answers questions about what is happening and why. In addition, the descriptive research design describes the characteristics of a population or phenomenon being studied. Primarily used to gain an understanding of a group or phenomenon. This involves collecting data through examination and observation. Descriptive research designs answer "Who, What, When, Where, Why, and How."

Using descriptive research design, the researcher could describe or determine the school administrators' management of the effective implementation of school programs and projects, which correlates to school performance.

#### Respondents

The researcher utilized and maximized document analysis based on the numeracy data of the students from Bagong Nayon II Elementary School. The respondents of the study were the elementary pupils from this selected school. The was administered to all the respondents, and they were given enough time to answer the research instrument.

## **Procedure**

Permission from the concerned authorities was sought before the conduct of the study. Upon approval of the school division superintendent and the principal, the researcher also asked permission from the principal of Bagong Nayon II Elementary School.

#### **Results and Discussion**

This section provided the presentation, analysis, and interpretation of the gathered data from the questionnaires answered by the respondents in accordance with the specific questions posited on the objectives of the study.

# Pre-test performance levels of students participating in the MATHINIK programs

Table 1 presented the distribution and percentage of the pre-test results of learners from Grades I to VI at Bagong Nayon II Elementary School according to their numeracy levels, as determined by the DD Card Test and Number Concept/Sense Result. The learners were categorized into four groups: Non-Numerate, Emergent, Average Numerate, and Above Average Numerate, with data divided between lower grades (I, II, and III) and upper grades (IV, V, and VI). For Non-Numerate learners, those who scored 30% or below in both assessments, the lower grades had 193 students (6.33%) while the upper grades had 109 students (3.70%). This indicated that younger students were more likely to struggle with basic numeracy skills, but the number decreased as students progressed to higher grades.

Emergent learners, who scored between 31% and 60% on at least one of the assessments, made up 34.83% (1062 students) of the lower grades and 22.55% (664 students) of the upper grades, suggesting an improvement in numeracy skills as students advanced in their education. According to Mamolo (2021), the developed achievement test in general mathematics is a valid, reliable, and item-quality tool for measuring students' competency in the k-12 curriculum.

Table 1. Pre-test performance levels of students participating in the MATHINIK programs

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Criteria	No. Of Learners From Grades I, II, and III	Percentage	No. Of Learners From Grades IV, V, and VI	Percentage
Non-Numerate	193	6.33	109	3.70
(Learners who got 30% AND BELOW in both DD				
Card Test and Number Concept/Sense Result)				
Emergent	1062	34.83	664	22.55
(Learners who met the criterion of 31%-60% in DD				
Card Test OR				
Number Concept/Sense Result)				
Average Numerate	1150	37.72	984	33.42
(Learners who met the criterion of ATLEAST 61% in				
DD Card Test OR Number Concept/Sense				
Result)				
Above Average Numerate	644	21.12	1187	40.32
(Learners who got ATLEAST 61% in BOTH				
DD Card Test and Number Concept/ Sense				
Result)				
Total	3049	100.00	2944	100.00

A large proportion of students fell into the Average Numerate category, meeting at least 61% in one of the assessments, with 37.72% (1150 students) in the lower grades and 33.42% (984 students) in the upper grades. This indicated a basic but solid understanding of numeracy concepts among a substantial number of students. Above Average Numerate learners, who scored at least 61% in both assessments, showed a significant increase from 21.12% (644 students) in the lower grades to 40.32% (1187 students) in the upper grades, suggesting that students developed stronger numeracy skills and achieved higher proficiency levels as they progressed through their schooling. The total number of learners in the lower grades was slightly higher at 3049 compared to 2944 in the upper grades. Summer programs significantly improve children's mathematics achievement, with similar effects in both higher- and lower-poverty settings. (Lynch et al., 2022).

Overall, the distribution highlighted a positive trend where students' numeracy skills improved as they advanced to higher grades, with fewer students in the non- numerate and emergent categories and more students in the average and above-average numerate categories. This suggested that the current educational strategies and interventions at Bagong Nayon II Elementary School might have been effective in enhancing numeracy skills as students moved up the grades. However, continued focus on early intervention and support was necessary to further reduce the number of non- numerate and emergent learners in the lower grades. The mathematics test items at SMKN 3 Kuningan are of good quality, with a high reliability, ideal difficulty level, and good discriminating power. (Manfaat et al., 2021).

#### Post-test performance levels of students participating in the MATHUSAY programs

Table 2. Post-test performance levels of students participating in the MATHUSAY programs

Criteria	No. Of Learners From	Percentage	No. Of Learners From	Percentage
	Grades I, II, and III		Grades IV, V, and VI	
Non-Numerate	151	5.00	46	1.57
(Learners who got 30% AND BELOW in both DD				
Card Test and Number Concept/Sense Result)				
Emergent	911	30.17	545	18.66
(Learners who met the criterion of 31%-60% in DD				
Card Test OR				
Number Concept/Sense Result)				
Average Numerate	1254	41.52	1112	38.07
(Learners who met the criterion of ATLEAST 61% in				
DD Card Test OR Number Concept/Sense				
Result)				
Above Average Numerate	681	22.55	1218	41.70
(Learners who got ATLEAST 61% in BOTH				
DD Card Test and Number Concept/ Sense				
Result)				
Total	2997	100.00	2921	100.00

Table 2 presented the post-test performance levels of students from Grades I to VI at Bagong Nayon II Elementary School who participated in the MATHUSAY programs. The learners were categorized into four groups based on their scores in the DD Card Test and Number Concept/Sense Result: Non-Numerate, Emergent, Average Numerate, and Above Average Numerate. The data was divided between lower grades (I, II, and III) and upper grades (IV, V, and VI). In the non-numerate category, which included learners who scored 30% or below in both assessments, there were 151 students (5.00%) in the lower grades and 46 students (1.57%) in the upper grades. This suggested that fewer students in the upper grades struggled with basic numeracy skills compared to those in the

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lower grades, indicating an improvement as students progressed. According to Paredes et al. (2020), academic performance in math is significantly correlated with national achievement test results, with significant variance in student performance over four consecutive school years.

For the Emergent category, which included learners who scored between 31% and 60% on at least one of the assessments, 911 students (30.17%) were in the lower grades, and 545 students (18.66%) were in the upper grades. This decrease in the percentage of Emergent learners from lower to upper grades reflected an improvement in numeracy skills as students advanced in their education. The Average Numerate category included learners who met at least 61% in one of the assessments. In the lower grades, 1254 students (41.52%) fell into this category, while in the upper grades, there were 1112 students (38.07%). A large proportion of students in both lower and upper grades achieved average numeracy levels, indicating a solid understanding of numeracy concepts among these students. The Above Average Numerate category, which included learners who scored at least 61% in both assessments, saw a significant increase in the percentage from lower to upper grades. In the lower grades, 681 students (22.55%) were above average, while in the upper grades, 1218 students (41.70%) achieved this level. This substantial increase suggested that as students progressed through their schooling, they developed stronger numeracy skills, with more students reaching higher proficiency levels. Francisco et al. (2022) stated that math intervention programs effectively improve grade 8 students' performance in math, with a significant difference between pre- and post-test results.

Overall, the total number of learners in the lower grades was 2997, while the upper grades had 2921 students. The data highlighted a positive trend where students' numeracy skills improved as they advanced to higher grades. The decrease in the percentage of Non-Numerate and Emergent learners and the increase in Average and Above Average Numerate learners indicated the effectiveness of the MATHUSAY programs. However, continued efforts were necessary to support and enhance the numeracy skills of students, particularly in the lower grades, to further reduce the number of learners struggling with basic numeracy. According to Adelabu & Alex (2022), student teachers entering higher education institution with limited mathematics content knowledge need intensive engagement in learning during their training as future teachers.

# Significant difference between students' pre-test and post-test performance in the MATHUSAY programs

Table 3. Significant difference between students' pre-test and post-test performance in the MATHUSAY programs

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Variables	t-value	p-value	Decision	Interpretation	
Pre-test and Post-test performance in the MATHUSAY programs					
Pre-test and Post-test performance in	5.79	0.00409	Reject Ho	Highly Significant	
the MATHUSAY programs					

Table 3 revealed a robust and noteworthy difference between students' performance on pre-tests and post-tests within the MATHUSAY programs. A t-value of 5.79, coupled with a remarkably low p-value of 0.00409, led to the rejection of the null hypothesis (Ho) and confirmed that this difference was highly significant. This outcome implied that the MATHUSAY programs had made a substantial positive impact on students' mathematical proficiency over the course of their implementation. The low p-value was crucial, as it signified that the observed improvement in performance from pre-test to post-test was unlikely to be due to random chance. Instead, it strongly suggested that the MATHUSAY programs had effectively contributed to enhancing students' mathematical skills. Such findings were particularly compelling in educational research, as they provided empirical evidence supporting the efficacy of targeted educational interventions like MATHUSAY.

Moreover, these results underscored the importance of implementing evidence- based programs that could measurably enhance student learning outcomes in specific subject areas such as mathematics. By demonstrating a significant improvement in students' performance over a relatively short period, these findings highlighted the potential of structured educational initiatives to positively impact academic achievement and educational quality. Therefore, the significant difference observed in this study served as compelling evidence for the effectiveness of the MATHUSAY programs in improving students' mathematical proficiency. Avvisati & Borgonovi (2020) stated that a single test practice slightly improved students' mathematics performance, but not general reasoning or problem-solving ability, with larger gains for boys than girls.

#### **Pupils Academic Performance in Mathematics Subject**

Table 4 The table presented the mean percentage scores of pupils across different grade levels in the Mathematics subject, along with their corresponding verbal interpretations. Grades 1 to 4 had achieved mean scores ranging from 75.35% to 79.15%, all categorized as "Proficient," indicating a solid grasp of the subject matter during that period. These scores suggested that students in these grades were performing well above average in Mathematics. Teacher-related factors, such as teaching skills and instructional materials, significantly predict students' academic performance in mathematics (Silangan et al., 2023).

However, as the discussion moved to grades 5 and 6, the mean scores dropped to 69.55% and 65.63% respectively, categorized as "Nearly Proficient." This indicated a slight decline in performance compared to the earlier grades, suggesting that students in these higher grades were encountering more challenges or complexities within the subject at that time. The drop in mean scores suggested

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that some students in grades 5 and 6 may have benefited from additional support or resources to strengthen their mathematical skills and understanding. According to Iddrisu et al. (2023), students' willingness to learn, perceptions of mathematics as difficult, readiness for teaching materials, relationships with teachers, and attentiveness in mathematics lessons all affect their academic performance in the subject.

Table 4. Pupils Academic Performance in Mathematics Subject

Grade Level	Mean Percentage Score	Verbal Interpretation
1	79.15	Proficient
2	78.6	Proficient
3	77.8	Proficient
4	75.35	Proficient
5	69.55	Nearly Proficient
6	65.63	Nearly Proficient

Overall, while the majority of students across all grades performed at proficient levels in Mathematics during the period analyzed, the decline in mean scores in grades 5 and 6 highlighted the importance of ongoing support and targeted interventions to ensure continued academic growth and achievement in this subject area. Pellegrini et al. (2021) stated that tutoring programs and professional development for classroom organization and management positively impact student achievement in elementary mathematics, while teacher training and curriculum adoption have minimal impact.

# Relationship between the performance levels of students participating in the MATHUSAY programs and the Pupils Academic Performance in Mathematics Subject

Table 5. Relationship between the performance levels of students participating in the MATHUSAY programs and the Pupils Academic Performance in Mathematics Subject

Variable	r-value	p-value	Decision	Interpretation
Performance levels of students in the MATHINIK programs	0.066	0.260	Accept Ho	Not Significant
and Pupils Academic Performance in Mathematics Subject				

Table 5 The correlation analysis conducted between the performance levels of students in the MATHUSAY programs and their academic performance in Mathematics revealed intriguing insights. The calculated r-value of 0.066 and the corresponding p- value of 0.260 led to the acceptance of the null hypothesis (Ho), indicating that there was no statistically significant relationship between these variables.

This finding suggested that, based on the data examined, participating in the MATHUSAY programs did not demonstrate a strong linear correlation with students' academic performance in Mathematics during the period analyzed. The non-significant p-value of 0.260 implied that any observed correlation between students' program performance levels and their academic outcomes in Mathematics could likely have occurred by random chance rather than indicating a causal relationship. Thus, while the MATHUSAY programs aimed to improve mathematical proficiency, this analysis suggested that other factors not explored in this study may have played a more influential role in determining students' performance in Mathematics. Positive study habits and learning techniques positively impact students' academic performance in Math, with self- confidence not being a significant factor (Abalde & Oco, 2023).

Possible factors influencing academic performance could have included individual student aptitude, motivation levels, prior knowledge, teaching methodologies, or even external factors such as home environment or socio-economic status. These elements could potentially have overshadowed the impact of participating in the MATHUSAY programs alone on students' performance in Mathematics.

Therefore, while the MATHUSAY programs may have provided valuable educational support and enrichment, their direct impact on enhancing academic performance in Mathematics, as indicated by this analysis, appeared to have been less pronounced during the period studied. Future studies could delve deeper into these additional factors to better understand how various elements interact to influence students' learning outcomes in Mathematics and other academic subjects. Poor academic performance in mathematics is directly affected by the student's coexistence environment, triggering deficiencies that hinder optimal academic development (Mendoza-Peñarrieta & Alcívar-Cedeño, 2022).

#### **Intervention Program**

Table 6 outlined intervention programs aimed to enhance educational outcomes, particularly in mathematics, based on past analyses of student performance and identified needs. The Early Numeracy Intervention Program focused on strengthening foundational numeracy skills among grades 1 and 2 students through small-group instruction, one-on- one tutoring, and interactive math activities. It was overseen by the numeracy coordinator or early childhood education specialist to ensure tailored support aligned with developmental stages. Building on its proven effectiveness, the Enhanced MATHUSAY Program expanded across all grades, integrating innovative teaching methods and technology to improve post-test performance in mathematics. Coordinated by the school principal and the mathematics department head or curriculum specialist, the program continuously adapted to meet evolving educational needs.

Table 6. Proposed Intervention Program

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Intervention Program	Objective	Time Frame	Person In Charge
Early Numeracy Intervention Program	To improve foundational numeracy skills among non-numerate and emergent learners in grades 1 and 2.	Implemented throughout the academic year	Numeracy coordinator or early childhood education specialist
Enhanced MATHINIK Program Expansion	To expand and enhance the existing MATHUSAY program to improve posttest performance across all grades.	Roll out enhancements at the beginning of the school year	School principal and mathematics department head or curriculum specialist
Professional Development in Data- Driven Instruction	To equip teachers with data- driven instructional strategies to address individual student needs in mathematics.	Conducted over several professional development days throughout the school year	Professional development coordinator in collaboration with the mathematics department
Middle Grades Academic Support Program	To support students in grades 5 and 6 with targeted interventions to improve academic performance in mathematics.	Implemented as an after-school program or during dedicated support periods, running throughout the school year	Team of teachers specializing in mathematics, coordinated by grade-level team leader

The Professional Development in Data-Driven Instruction initiative equipped teachers with effective instructional strategies through workshops, peer learning communities, and mentoring sessions focused on analyzing assessment data to adjust teaching practices. Led by the professional development coordinator and supported by the mathematics department, it fostered a collaborative environment aimed at optimizing student learning outcomes. Meanwhile, the Middle Grades Academic Support Program targeted grades 5 and 6 with after-school tutoring, personalized learning plans, and regular progress monitoring to address declines in mean scores observed in those grades. Coordinated by a team of mathematics teachers under the guidance of the grade-level team leader, the program aimed to boost student confidence and achievement in mathematics during crucial developmental stages.

Lastly, the Research and Impact Evaluation Initiative explored factors influencing academic achievement beyond program participation through surveys, interviews, and data analysis. Managed by the research and evaluation committee with external consultant support as needed, findings informed tailored interventions to optimize educational strategies and address systemic challenges. Together, these programs formed a cohesive approach to enhancing educational quality and supporting student achievement at Bagong Nayon II Elementary School, fostering a supportive learning environment conducive to academic success in mathematics and beyond.

## **Conclusions**

Several key conclusions can be drawn based on the analyses conducted regarding the performance levels of students participating in the MATHUSAY programs and their implications for educational strategies at Bagong Nayon II Elementary School. The distribution of pre-test performance levels among students revealed a positive trend in numeracy skills as students progressed through higher grades. This encouraging progression, marked by fewer students categorized as non-numerate or emergent and an increase in those classified as average and above-average numerate, underscores the effectiveness of the educational strategies implemented at the school. It also highlights the need for continued early intervention and support, particularly in the lower grades, to further diminish the number of students struggling with basic numeracy concepts. The post-test performance levels indicated a positive trajectory in students' numeracy skills across higher grades, underscoring the effectiveness of the MATHINIK programs. The noticeable decrease in the percentage of non-numerate and emergent learners and an increase in average and above-average numerate learners reflected the impact of targeted interventions to improve mathematical proficiency. This improvement signified that structured educational initiatives like MATHUSAY could significantly enhance student learning outcomes within a relatively short timeframe. Such findings reinforced the importance of evidence-based programs in driving academic achievement and enhancing overall educational quality. The analysis of significant differences between students' pre-test and post-test performance in the MATHUSAY programs provided compelling evidence for their efficacy in improving mathematical proficiency. The observed improvements highlighted the potential of these programs to bridge educational gaps and support continuous academic growth. Demonstrating measurable advancements in student performance underscored the critical role of structured interventions in promoting sustained academic success in mathematics and other subject areas.

Regarding pupils' overall academic performance in Mathematics, the majority of students across all grades exhibited proficient levels during the period analyzed. However, a decline in mean scores among students in grades 5 and 6 underscores the need for ongoing support and targeted interventions to ensure consistent academic growth. This highlights the importance of maintaining educational momentum and addressing potential challenges as students progress. The analysis of the relationship between the performance levels of students in the MATHUSAY programs and their academic performance in Mathematics yielded insights into the program's impact. While the MATHUSAY programs provided valuable educational support and enrichment, the correlation analysis indicated that their direct influence on enhancing academic performance in Mathematics was less pronounced during the period studied. This suggested that additional factors beyond program participation may have significantly influenced students' academic outcomes. Future research should explore these factors comprehensively to understand how various elements interact to influence students' learning outcomes in mathematics and other academic subjects. While the MATHUSAY programs showed promising results in improving numeracy skills and supporting educational growth at Bagong Nayon II Elementary School, ongoing efforts are essential. By continuing to refine

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educational strategies, provide targeted interventions, and explore additional influencing factors, schools can foster a supportive learning environment conducive to sustained academic success in mathematics and beyond.

Based on the conclusions drawn from the analysis of students' performance in the MATHUSAY programs and their academic outcomes at Bagong Nayon II Elementary School, several recommendations can be made to enhance educational strategies and support student achievement. Firstly, enhancing early intervention programs is crucial. The analysis revealed a positive trend in numeracy skills among students as they progressed through higher grades, indicating the effectiveness of early support. To build on this success, expanding targeted interventions for non-numerate and emergent learners in the lower grades is imperative. Schools can strengthen foundational mathematical skills and mitigate potential academic challenges before they escalate by providing personalized attention and additional resources early in a student's educational journey. Secondly, sustaining and expanding the MATHUSAY programs is recommended. These programs have effectively improved post-test performance, underscoring their value in enhancing mathematical proficiency. To further optimize their impact, schools should consider integrating innovative teaching methods and leveraging technology to enhance learning experiences continuously. This approach not only supports academic growth but also fosters engagement and interest in mathematics among students. Continuous professional development for educators is equally essential. This ensures that teachers maintain high-quality teaching practices tailored to improving numeracy skills. Schools can effectively address individual student needs and adapt instruction to optimize learning outcomes by equipping teachers with the latest research-based strategies and data-driven approaches. Monitoring and supporting students in middle grades is crucial in light of the observed decline in mean scores among grades 5 and 6. This is an important strategy to address academic challenges and promote ongoing academic growth. Implementing robust monitoring systems and providing timely interventions, such as tutoring and differentiated instruction, are effective ways to identify struggling students early and provide necessary support to ensure they remain on track academically. Furthermore, expanding research into influencing factors beyond program participation is recommended. Understanding socio-economic influences, student motivation, and parental involvement in academic achievement provides valuable insights for developing targeted interventions. By conducting comprehensive research, schools can tailor their strategies more effectively to meet the diverse needs of their student population and address underlying factors impacting academic performance. Lastly, promoting a holistic educational approach is essential for nurturing well-rounded individuals prepared for future success. This includes fostering critical thinking, problem-solving skills, and socio-emotional development through project-based learning and interdisciplinary approaches. By integrating these elements into the curriculum, schools enhance academic skills and equip students with essential life skills necessary for personal and professional growth. By implementing these recommendations, Bagong Nayon II Elementary School can build upon its successes, address challenges proactively, and create a supportive learning environment that maximizes educational outcomes for all students. Continuous evaluation and adaptation of strategies based on evidence and feedback will be key to sustained improvements in student achievement and overall educational quality.

#### References

Abalde, G., & Oco, R. (2023). Factors Associated with Mathematics Performance. Asian Research Journal of Mathematics. https://doi.org/10.9734/arjom/2023/v19i6665.

Abdi, L. (2019). The Status of the implementation of school improvement program in primary schools of Ilu Aba Bora Zone: Ethiopia. International Journal of Advanced Research in Education & Technology, 3(4), 50-55.

Adelabu, F. M., & Alex, J. (2022). Online Baseline Assessment in Mathematics: Initial Teacher Education Entry-Level Student Performance. Academic Journal of Interdisciplinary Studies, 10.36941/ajis-2022-0006.

Amsale, F. (2021). Practices and Challenges of Implementing School Improvement Program in Primary Schools of Jimma City Administration.

Anderson-Butcher, D., & Ashton, D. (2020). Innovative models of collaboration to serve children, youths, families, and communities. Children & Schools, 26(1), 39-53.

Ashagre, R. (2019). The Implementation of School Improvement Program in Kokebe Tsibah and Wondyrad Preparatory Schools. Doctoral thesis, University of Ethiopia.

Avvisati, F., & Borgonovi, F. (2020). Learning Mathematics Problem Solving through Test Practice: A Randomized Field Experiment on a Global Scale. Educational Psychology Review, 10.1007/s10648-020-09520-6.

Barnard, W. M. (2020). Parent involvement in elementary school and educational attainment. Children and Youth Services Review, 26(1), 39-52.

Botha, R. J. (2020). School effectiveness: conceptualizing divergent assessment approaches. South African Journal of Education, 30(4).

Brinks, R., Bullard, J., Cruz, J., Fredericks, S., Johnston, J., O'Connell Rust, F., & ThomasFair, U. (2019). NAEYC Standards for Early Childhood Professionals.

Buli, K. (2020). Factors Affecting the Implementation of School Improvement Program: The Case of Nekemte Town, Oromia Region. Doctoral thesis, University of Ethiopia.

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Daly-Smith, A., et al. (2020). Using a multi-stakeholder experience-based design process to co-develop the Creating Active Schools Framework. International Journal of Behavioral Nutrition and Physical Activity, 17(1), 1-12. doi:10.1186/s12966-020-0917-z.

Francisco, J. G., Alova, C. A. R., Alova, I. M. C., & Apohen, S. L. (2022). Performance of Grade 8 Students in Mathematics Intervention Program. International Journal of Multidisciplinary: Applied Business and Education Research, 10.11594/ijmaber.03.09.14.

Getnet, D., & Yonas, S. (2020). Contribution of School Leadership for School Improvement Program in Selective Government Secondary Schools of Guji Zone, Oromia Regional State. Doctoral dissertation, Harmaya University.

Gezahegn, D., & Abebe, H. (2019). Practices and Challenges of School Improvement Program (SIP) in Secondary Schools of Ilu Aba Bor Zone. Angewandte Chemie International Edition, 6(11), 951-952.

Ginsburg, M., Klauss, R., Nankhuni, F., Nyirongo, L., Omowoyela, J. S., Richardson, E., Terwindt, R., & Willimann, C. (2020). Engaging community members in enhancing educational quality: Studies of the implementation of the Primary School Improvement Programme in Malawi. Southern African Review of Education, 20(1), 30-57.

Hagos, G. B., & van Wyk, M. M. (2021). Parental involvement in children's academic achievements: A case of Ethiopian schooling. International Journal of Educational Organisation and Leadership, 28(1), 123-140. doi:10.18848/2329-1656/CGP/V28I01/123-140.

Harris, A. (2019). Teacher leadership and school improvement. In Effective Leadership for School Improvement (pp. 82-93). Routledge.

Harris, A., Day, C., Hopkins, D., Hadfield, M., Hargreaves, A., & Chapman, C. (2019). Effective Leadership for School Improvement. London: Routledge.

Hopkins, D., Hargreaves, A., Lieberman, A., & Fullan, M. (2020). The Practice and Theory of School Improvement: International Handbook of Educational Change (Vol. 4). Springer Science & Business Media.

Iddrisu, A., Bornaa, C., Alagbela, A., Kwakye, D., Gariba, A., Ahusah, E., & Badger, T. (2023). Students' Characteristics and Academic Performance in Mathematics. Journal of Education, Society and Behavioural Science. https://doi.org/10.9734/jesbs/2023/v36i31214.

Julia, D., & Mitcham, D. (2019). Principal-to-principal webinar series: Monitoring implementation of the school improvement plan.

Kene, D., Kedir, H., Basha, G., & Dinsa, F. (2021). Effectiveness of Principals' Leadership Styles in School Improvement and Students' Academic Achievement in Government Secondary Schools of Oromia Regional State, Ethiopia: Students' Academic Achievement. Creative Education, 12(11), 2535-2554.

Lezotte, L. W. (2020). Effective teaching and learning makes a conducive school environment: The Effective Schools Movement.

Lynch, K., An, L., & Mancenido, Z. (2022). The Impact of Summer Programs on Student Mathematics Achievement: A Meta-Analysis. Review of Educational Research. doi:10.3102/00346543221105543.

M.o.E. (2020). Education Statistics Annual Abstract: September 2019-March 2020. Available at: www.moe.gov.et.

Mamolo, L. A. (2021). Development of an Achievement Test to Measure Students' Competency in General Mathematics. Anatolian Journal of Education. doi:10.29333/AJE.2021.616A.

Manfaat, B., Nurazizah, A., & Misri, M. A. (2021). Analysis of mathematics test items quality for high school. Jurnal Penelitian dan Evaluasi Pendidikan. doi:10.21831/PEP.V25I1.39174.

Mendoza-Peñarrieta, F., & Alcívar-Cedeño, M. (2022). Poor academic performance in mathematics of upper basic students. International Journal of Physics & Mathematics. https://doi.org/10.21744/ijpm.v5n1.1909.

Paredes, D. P., Albopera, R. G., Balog, G. T., Buladas, V. A., Hoyle, M. G. D., Guimere, M. V. A., ... Wado, L. J. (2020). Mathematics Grade as Correlate to Performance in the National Achievement Test. University of Bohol Multidisciplinary Research Journal. doi:10.15631/ubmrj.v8i1.127.

Pellegrini, M., Lake, C., Neitzel, A., & Slavin, R. (2021). Effective Programs in Elementary Mathematics: A Meta-Analysis. AERA Open, 7. https://doi.org/10.1177/2332858420986211.

Rahman, K. A., et al. (2021). Implementing a formative assessment model at the secondary schools: Attitudes and challenges. Language Testing in Asia, 11(1). doi:10.1186/s40468-021-00136-3.

Ramberg, J., Låftman, S. B., Almquist, Y. B., & Modin, B. (2019). School effectiveness and students' perceptions of teacher caring: A multilevel study. Improving Schools, 22.

Sammons, P., Davis, S., Day, C.& Gu, Q.(2020). Using mixed methods to investigate school improvement and the role of leadership:

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An example of a longitudinal study in England. Journal of Educational Administration.

Sapo Shanko, S.(2019). 'European Journal of Education Studies Stakeholders' Contributions And Challenges Of School Improvement Program Implementation: The Case Of Primary Schools'. European Journal of Education Studies, 0(0), pp. 414–433. doi:10.5281/zenodo.3885763.

Silangan, C., Mocsir, R., Regner, R., & Peteros, E. (2023). Predictive Analysis on Students' Academic Performance in Mathematics. Global Journal of Educational Studies. https://doi.org/10.5296/gjes.v9i1.21040.

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