ACADEMIC PERFORMANCE AND NATIONAL ACHIEVEMENT TEST (NAT) PERFORMANCE IN SCIENCE AND MATHEMATICS

Neri C. Ojastro, Vincent L. Banot,Nilita L. Ragay, Normina A. Batucan
Department of Education, Division ofNegros Oriental
Negros Oriental State University, Negros Oriental, Philippines
Email: bsedmath1234@gmail.com

ABSTRACT: *This study explores the relationship between academic performance and National Achievement Test (NAT) results in Mathematics and Science among Grade 12 public senior high schools in the Negros Oriental Division. Using a descriptive-correlational research design, the study analyzes school-level academic performance and NAT results to identify trends, relationships, and differences. The schools included in the study were selected through purposive sampling to ensure the inclusion of those with and without Mathematics and Science subject offerings.The findings reveal a disconnect between academic performance and NAT outcomes. While academic performance was generally rated as "Very Satisfactory" or "Outstanding," NAT results fell within the "Low Proficient" category for both subjects. The analysis showed weak correlations between academic performance and NAT results, particularly in Mathematics, with negligible associations, and a slightly stronger relationship in Science. Minimal differences were observed between NAT results of schools with and without Mathematics and Science subject offerings, indicating that other factors may significantly influence standardized test outcomes.To address these gaps, the study recommends a redesigned strand-specific NAT to align assessments with the specialized competencies of senior high school strands. Targeted interventions such as curriculum realignment, teacher training, and enhanced test preparation are suggested to improve student performance. Additionally, addressing socio-economic challenges and resource disparities is emphasized to foster equitable educational opportunities. By bridging these gaps, schools can better align academic and standardized assessments, improving overall educational quality and preparing students for future challenges.*

Keywords: Academic performance, National Achievement Test (NAT), Mathematics, Science, senior high school, Mean Percentage Scores (MPS), curriculum alignment, standardized assessment

1 INTRODUCTION.

Education plays a critical role in shaping the future of individuals and nations. In the Philippines, the National Achievement Test (NAT) serves as a vital tool for assessing student performance in key subject areas, including Mathematics and Science. The NAT evaluates students' proficiency in critical thinking, problem-solving, and information literacy, aligned with the goals of the K-12 curriculum. However, recent results reveal a pressing concern: the Division of Negros Oriental's performance in the 2024 NAT fell below the national average, with mean percentage scores (MPS) of 34.47 in Mathematics and 32.03 in Science, compared to the national averages of 36.51 and 34.05, respectively [1]. This level is classified as "low proficiency," highlighting significant gaps in student achievement [2].

The factors contributing to these results are multifaceted, involving learner, teacher, and administrative dimensions. Prior studies emphasize the correlation between academic performance and standardized test results. For instance, TIMSS and other international assessments demonstrate a positive relationship between school grades, national test scores, and student background, particularly socio-economic status [3; 4].

In a local context, mathematics academic grades were also found to correlate significantly with NAT performance, underscoring the importance of foundational skills in influencing outcomes [5].

This study aims to analyze the relationship between academic performance and NAT results in Mathematics and Science among Grade 12 students in Negros Oriental. By investigating the links between subject offerings, academic achievement, and NAT outcomes, this research seeks to provide data-driven insights to improve educational strategies and policy recommendations, ultimately aiming to elevate student proficiency and the division's overall performance. Specifically, it purports to shed light on the following questions:

1. What is the academic performance of grade 12 public senior high schools of Negros Oriental division in terms of:
   1.1 Mathematics; and
   1.2 Science?
2. What is the National Achievement test mean percentage score (MPS) of grade 12 public senior high schools of Negros Oriental division in terms of:
   1.1 Science; and
   1.4 Mathematics?
3. Is there a relationship between the academic performance of schools offering math and science and the National Achievement test mean percentage score (MPS)?
4. Is there a relationship between the academic performance of schools with and without math and science and the National Achievement test mean percentage score (MPS)?
5. What is the difference between the Academic Performance and NAT results of schools with mathematics and science offerings in grade 12?
6. What is the difference between the NAT results of schools with and without mathematics and science offerings in grade 12?
7. What recommendations can be proposed to improve the academic performance and National Achievement Test (NAT) mean percentage scores of grade 12 public senior high schools in the Negros Oriental division based on the findings of the study?

2. REVIEW OF RELATED LITERATURE

The National Achievement Test (NAT) serves as a critical barometer for assessing the proficiency of Filipino students in

core subject areas, including Mathematics and Science. It also evaluates essential 21st-century skills such as critical thinking, problem-solving, and information literacy [2]. The declining performance on the NAT has prompted significant concern among educators, policymakers, and stakeholders. The Division of Negros Oriental's NAT mean percentage scores (MPS) in Mathematics (34.47) and Science (32.03) in 2024, categorized as "low proficient," were below the national averages of 36.51 and 34.05, respectively [1]. These results underscore the urgent need to investigate the factors influencing academic achievement and standardized test performance.

Academic Performance and Its Correlation with NAT Results
The relationship between students' academic performance and their NAT results has been extensively studied. Paredes et al. [5] reported a significant positive correlation between Mathematics grades and NAT results, indicating that strong academic performance in Mathematics predicts higher standardized test scores[6]. This finding is supported by Cabiling-Ramos [7], who highlighted the critical role of student-related factors such as socio-emotional readiness and study habits, which had the largest impact on NAT outcomes, surpassing teacher and administrative influences[8]. Similarly, Callaman and Itaas[9] conducted a meta-analysis of Mathematics achievement in Mindanao, revealing that mathematical skills, self-efficacy, and attitudes were key predictors of performance. Their study emphasized the disparity in achievement between students from public and private schools, with private school students often outperforming their public school counterparts [10].

Factors Influencing NAT Performance
Several studies have delved into the factors affecting NAT performance. Argianti and Retnawati[11] examined the characteristics of Math National Standardized School Exam (NSSE) test items and noted that while the test items demonstrated reliability and validity, their tendency to be categorized as "easy" limited their ability to differentiate between students with varying levels of proficiency. This aligns with findings from Branzuela et al. [12], who reported that Mathematics and Science consistently posed the greatest challenges for students in Misamis Oriental, as compared to higher-scoring subjects like Filipino and Social Studies[13].
Fetalver and Merano [14] emphasized the significant role of self-efficacy and attitude in Mathematics achievement. Their study revealed that students with higher self-confidence and reduced anxiety performed better in Mathematics, translating to improved NAT scores[14]. These findings resonate with international research, such as the study by Wiberg [4], which demonstrated a strong positive relationship between students' scores in TIMSS Mathematics assessments, national tests, and school grades, particularly among students from more educated and socio-economically advantaged households[10].

Trends in International Mathematics and Science Study (TIMSS) and Its Implications
Internationally, the Trends in International Mathematics and Science Study (TIMSS) has provided valuable insights into the relationship between standardized test results, school grades, and socio-economic factors. Palmerio and Caponera [3] found that TIMSS Mathematics achievements were

closely linked with school grades and national test scores. Furthermore, they highlighted the influence of socioeconomic and cultural backgrounds on student performance, revealing disparities that affect achievement [15]. Such insights are critical in contextualizing NAT results within broader global trends and identifying strategies to enhance student outcomes in Mathematics and Science.

Challenges in Curriculum and Instruction
Studies have also pointed to curriculum and instructional challenges as contributing factors to low NAT performance. Mirabueno and Boyon[16] analyzed Senior High School academic progression in Mathematics and identified significant relationships between Grade 11 Mathematics performance and earlier assessments such as the National Career Assessment Examination (NCAE) and NAT Mathematics results. Their findings underscore the need for targeted interventions and curriculum adjustments to address students' specific learning gaps [8].
Similarly, Nguyen et al. [17] examined student performance in achievement tests across Asia and found below-average results in Science, Mathematics, and English. The study highlighted the importance of managerial planning and program redesign to improve student outcomes, emphasizing the role of leadership and institutional support[15].

Implications for Educational Policy and Interventions
The findings from these studies underscore the need for comprehensive educational reforms and data-driven interventions. Addressing the issues of test design, instructional quality, and socio-economic disparities is essential for improving student performance. For example, the study by Kalaing[18] revealed that performance variables such as home, school, and environmental factors significantly influence NAT results in English, suggesting the importance of holistic approaches to education[14].
Moreover, TIMSS-related research indicates that standardized assessments should not only evaluate cognitive skills but also consider socio-cultural contexts and background factors that influence achievement [4, 3]. These findings are pivotal for the Philippine educational system, as they emphasize the need to tailor interventions to the unique needs of students from diverse backgrounds.

3. SIGNIFICANCE OF THE STUDY
The findings of this study are expected to provide valuable insights and practical implications for various stakeholders in the education sector, specifically in the context of improving student performance in Mathematics and Science as reflected in the National Achievement Test (NAT).

For Educators
This study highlights the relationship between academic performance and NAT results, offering data-driven insights to inform teaching strategies in Mathematics and Science. By understanding the factors influencing NAT outcomes, educators can implement targeted interventions, refine their teaching approaches, and address learning gaps more effectively. These strategies will help enhance classroom practices, improve student engagement, and foster a deeper understanding of the subject matter.

For School Administrators
The results of this study can guide school administrators in designing programs that address the specific needs of

students and teachers. By identifying areas of weakness in Mathematics and Science performance, administrators can allocate resources efficiently, provide professional development opportunities for teachers, and support the implementation of innovative instructional strategies. Moreover, the findings can assist schools in achieving higher levels of proficiency and aligning their curricula with the goals of the K-12 program.

For Policymakers

This study contributes to educational policy by identifying key factors that influence NAT performance. Policymakers can use the findings to develop targeted reforms, improve curriculum design, and enhance the overall quality of education in the Philippines. Additionally, the results can inform decisions about resource allocation, teacher training, and the development of programs aimed at addressing socioeconomic disparities that affect student achievement.

For Researchers

The study serves as a reference for future research exploring the relationship between academic performance and standardized test results. By building on the findings of this study, researchers can examine additional variables, such as socio-economic status, school environment, and student attitudes, to develop a more comprehensive understanding of the factors affecting NAT performance. This research can also serve as a basis for comparative studies across different regions and countries.

For Students and Parents

Students and their families can benefit from the study's recommendations for improving academic performance in Mathematics and Science. Parents, in particular, can use the findings to support their children's learning by creating conducive study environments and encouraging positive attitudes toward challenging subjects. Students can gain insights into the importance of academic performance in preparing for standardized assessments and their implications for future educational and career opportunities.

For the Department of Education (DepEd)

This study provides valuable feedback to the Department of Education (DepEd) regarding the effectiveness of the K-12 curriculum and NAT assessments. The findings can help the DepEd evaluate current educational programs, implement necessary adjustments, and design interventions tailored to the unique needs of students in the Division of Negros Oriental. Furthermore, the study underscores the importance of designing NAT assessments that reflect the varying proficiencies and learning needs of students across different strands.

4. METHODOLOGY

Research Design

This study employs a descriptive-correlational research design to investigate the relationship between academic performance and National Achievement Test (NAT) results in Mathematics and Science among Grade 12 students in public senior high schools in the Division of Negros Oriental. The design is appropriate as it allows for examining the degree of relationship and potential predictive factors between the variables without manipulating them.

Participants and Sampling

The participants of this study include Grade 12 students from public senior high schools in the Division of Negros Oriental. Purposive sampling was employed to select schools offering Mathematics and Science as part of their curriculum. A total of 15 schools were included, with data collected on their academic performance and NAT results.

Research Locale

The study was conducted in public senior high schools in the Division of Negros Oriental, Philippines. This locale was chosen due to the division's performance in the 2024 NAT, which was below the national average in Mathematics and Science, highlighting a critical need for research and intervention.

Data Gathering

Data for this study were collected through documentary analysis, focusing on two primary areas: academic performance and National Achievement Test (NAT) results. Academic performance data included the General Weighted Average (GWA) in Mathematics and Science of Grade 12 students for the academic year 2023–2024. Meanwhile, NAT results comprised the Mean Percentage Scores (MPS) in Mathematics and Science from the 2024 NAT, along with proficiency levels. Permission was obtained from schools and the Department of Education (DepEd) to access these academic and NAT performance records.

The study relied on secondary data retrieved from school records and NAT results. The academic performance of students was measured using their GWA in Mathematics and Science, categorized according to DepEd's grading scale (Outstanding, Very Satisfactory, Satisfactory, etc.). The NAT performance was assessed through the MPS in Mathematics and Science, which was interpreted based on proficiency levels (Highly Proficient, Proficient, Nearly Proficient, Low Proficient, and Not Proficient).

Data Analysis

To analyze the collected data, various statistical methods were employed. Descriptive statistics, such as mean and standard deviation, were used to summarize academic performance and NAT results. Pearson's correlation coefficient and spearman rho were applied to examine the relationship between academic performance and NAT MPS in Mathematics and Science.

Ethical Considerations

Ethical considerations were prioritized throughout the study to ensure data confidentiality and security. Approval was sought from the DepEd Division of Negros Oriental and the participating schools before accessing records. All data were anonymized to protect the identities of participants, and findings were reported in aggregate form to prevent the identification of individual schools or students.

Scope and Limitations

This study focuses only on Grade 12 students in public senior high schools within the Division of Negros Oriental for the academic year 2023–2024. The findings may not be generalizable to private schools or schools outside the division. Additionally, the study relies solely on existing records, which may not account for other qualitative factors influencing performance, such as student attitudes, teacher competency, or learning resources.

RESULTS AND DISCUSSION

Table 1 Academic performance of grade 12 public senior high schools with Mathematics of Negros Oriental division

School	General Weighted Average	Description
1	87.9	Very Satisfactory
2	82.7	Satisfactory
3	91.4	Outstanding
4	90.6	Outstanding
5	88.45	Very Satisfactory
7	78.9	Fairly Satisfactory
8	87.15	Very Satisfactory
9	86.95	Very Satisfactory
10	89.55	Outstanding
11	89.05	Very Satisfactory
12	82.6	Satisfactory
13	90.06	Outstanding
14	87.85	Very Satisfactory
15	80.55	Satisfactory
Mean	**86.82**	**Very Satisfactory**

Legend:

DESCRIPTOR	GRADING SCALE
Outstanding	90-100
Very Satisfactory	85-89
Satisfactory	80-84
Fairly Satisfactory	75-79
Did Not Meet Expectations	Below 75

*Department of Education

Table 1 presents the academic performance of Grade 12 students in public senior high schools in the Negros Oriental Division based on their General Weighted Average (GWA) in Mathematics. The performance levels are categorized using the Department of Education's grading scale, ranging from Outstanding to Fairly Satisfactory.

The data reveal that the overall mean GWA is 86.82, which corresponds to a "Very Satisfactory" level of performance. This indicates that, on average, students in the Negros Oriental Division demonstrate above-average proficiency in Mathematics. Notably, four schools (Schools 3, 4, 10, and 13) achieved "Outstanding" performance, with GWAs of 90 and above, reflecting exceptional mastery of the subject. Meanwhile, six schools recorded "Very Satisfactory" performance, with GWAs between 85 and 89. Three schools fell under the "Satisfactory" category (Schools 2, 12, and 15), and one school, School 7, was classified as "Fairly Satisfactory", with a GWA of 78.9.

These findings suggest a commendable level of performance overall, but there are disparities among schools that warrant attention. Schools in the lower categories, such as "Satisfactory" and "Fairly Satisfactory," may benefit from targeted interventions to improve academic achievement. This aligns with prior research emphasizing the importance of providing additional support to students in Mathematics, particularly those in schools with relatively lower performance [17, 9].

Table 2 Academic performance of grade 12 public senior high schools with Science of Negros Oriental division

School	General Weighted Average	Description
1	83.55	Satisfactory
2	75	Fairly Satisfactory
3	87.15	Very Satisfactory
Mean	**81.9**	**Satisfactory**

Legend:

DESCRIPTOR	GRADING SCALE
Outstanding	90-100
Very Satisfactory	85-89
Satisfactory	80-84
Fairly Satisfactory	75-79
Did Not Meet Expectations	Below 75

*Department of Education

Table 2 presents the academic performance of Grade 12 students in public senior high schools in the Negros Oriental Division based on their General Weighted Average (GWA) in Science. There are only 3 schools offering science. The performance is categorized according to the Department of Education's grading scale, ranging from Outstanding to Fairly Satisfactory.

Table 3 National Achievement test mean percentage score (MPS) of grade 12 public senior high schools with Mathematics of Negros Oriental division

School	National Achievement Test Mean Percentage Score (MPS)	Description
1	29.44	Low Proficient
2	32.69	Low Proficient
3	25.77	Low Proficient
4	30.18	Low Proficient
5	33.46	Low Proficient
7	31.00	Low Proficient
8	47.99	Low Proficient
9	28.92	Low Proficient
10	28.94	Low Proficient
11	27.37	Low Proficient
12	28.42	Low Proficient
13	36.22	Low Proficient
14	30.30	Low Proficient
15	26.55	Low Proficient
Mean	**30.95**	**Low Proficient**

Legend:

Levels of Proficiency	MPS	Descriptions
Highly Proficient	90-100	At this level, the students are highly capable of solving problems, managing and communicating accurate information, and analyzing and evaluating data to create/formulate ideas.
Proficient	75-89	At this level, students are skilled in solving problems, managing and communicating information, and analyzing and evaluating data to create/formulate ideas.
Nearly Proficient	50 - 74	At this level, students met the minimum level of skills in solving problems, managing and communicating information, and analyzing and evaluating data to comprehend ideas.
Low Proficient	25-49	At this level, students can identify strategies for solving problems, and differentiate and organize information.
Not Proficient	0-24	At this level, students can solve simple problems, and classify and identify the source of information.

The overall mean GWA in Science is 81.9, which corresponds to a "Satisfactory" level of performance. Among the three schools evaluated, School 3 achieved the highest GWA of 87.15, classified as "Very Satisfactory", indicating strong academic performance in Science. School 1 followed with a GWA of 83.55, categorized as "Satisfactory", while School 2 recorded the lowest GWA of 75, which falls under the "Fairly Satisfactory" descriptor.

The results highlight a disparity in performance across the schools, with only one school attaining the "Very Satisfactory" level. This suggests that while some students demonstrate proficiency in Science, others struggle to meet higher standards. These findings are consistent with previous studies emphasizing the need for targeted interventions to improve Science education, especially in schools with lower performance levels [5, 12].

Table 3 shows the National Achievement Test (NAT) Mean Percentage Scores (MPS) in Mathematics for Grade 12 public senior high schools in the Negros Oriental Division. The MPS values fall under the "Low Proficient" category, as defined by the proficiency levels of the Department of Education.

The mean MPS across all schools is 30.95, indicating that the overall performance in Mathematics is within the "Low Proficient" range. Among the schools, School 8 recorded the highest MPS of 47.99, nearing the "Nearly Proficient" threshold. School 13 also performed relatively better than most, with an MPS of 36.22, though it still falls within the "Low Proficient" descriptor. On the other hand, School 3 had the lowest MPS of 25.77, reflecting the minimum level of performance within the same category.

Table 4 National Achievement test mean percentage score (MPS) of grade 12 public senior high schools with Science of Negros Oriental division

School	National Achievement Test Mean Percentage Score (MPS)	Description
1	30.35	Low Proficient
2	26.86	Low Proficient
3	40.21	Low Proficient
Mean	**32.47**	**Low Proficient**

Legend:

Levels of Proficiency	MPS	Descriptions
Highly Proficient	90-100	At this level, the students are highly capable of solving problems, managing and communicating accurate information, and analyzing and evaluating data to create/formulate ideas.
Proficient	75-89	At this level, students are skilled in solving problems, managing and communicating information, and analyzing and evaluating data to create/formulate ideas.
Nearly Proficient	50 - 74	At this level, students met the minimum level of skills in solving problems, managing and communicating information, and analyzing and evaluating data to comprehend ideas.
Low Proficient	25-49	At this level, students can identify strategies in solving problems, and differentiate and organize information.
Not Proficient	0-24	At this level, students can solve simple problems, and classify and identify the source of information.

These findings align with earlier studies that reported Mathematics as one of the weakest areas in the NAT, alongside Science, for both primary and secondary students in the Philippines [12]. Similarly, Paredes *et al.* [5] found a significant correlation between low academic performance in Mathematics and below-average NAT results, underscoring the importance of foundational skills in influencing standardized test outcomes.

Table 4 displays the National Achievement Test (NAT) Mean Percentage Scores (MPS) in Science for Grade 12 public senior high schools in the Negros Oriental Division. These are the only schools offering science. The scores are categorized using the Department of Education's proficiency levels, ranging from "Low Proficient" to "Highly Proficient."

The overall mean MPS in Science is 32.47, which falls within the "Low Proficient" category. Among the schools, School 3 achieved the highest MPS of 40.21, nearing the "Nearly Proficient" level but still categorized as "Low Proficient." School 1 followed with an MPS of 30.35, while School 2 recorded the lowest MPS of 26.86. These results indicate that students across the division are generally capable of identifying strategies and organizing information but struggle with more complex problem-solving and critical thinking skills required for higher proficiency levels.

The findings align with previous studies highlighting Science as one of the weakest areas in the NAT, particularly in public schools. Branzuela *et al*. [12] observed that Science consistently ranks among the lowest-performing subjects in NAT results across various regions in the Philippines. Similarly, the study by Paredes et al. [5] emphasized the need for improving foundational competencies in Science to enhance standardized test performance.

Table 5 Relationship between the academic performance of schools offering math and science and the National Achievement test mean percentage score (MPS)

NAT vs Academic Performance	Pearson r	Degree of Relationship
Math	-0.641	Moderate
Science	0.878	High

Table 5 presents the relationship between the academic performance of schools offering Mathematics and Science and their corresponding National Achievement Test (NAT) Mean Percentage Scores (MPS). The strength and direction of the relationships are analyzed using Pearson's correlation coefficient (Pearson R).

The results show a moderate negative relationship between academic performance in Mathematics and NAT MPS, with a Pearson r of -0.641. This indicates that as the academic performance of students in Mathematics increases, their NAT MPS tends to decrease, and vice versa. This unexpected inverse relationship may be attributed to differences in assessment focus or the challenges students face in applying classroom-taught concepts in standardized test settings. Similar findings have been noted in other studies, highlighting potential misalignments between academic grading systems and standardized test content [7].

On the other hand, the relationship between academic performance in Science and NAT MPS is highly positive, with a Pearson R of 0.878. This strong correlation suggests that higher academic performance in Science is closely associated with better results in the NAT. The finding aligns with prior research emphasizing the role of consistent

curriculum alignment and subject mastery in improving standardized test outcomes [5; 3]

Table 6 Relationship between the academic performance of schools (with and without math and science) and the National Achievement Test mean percentage score (MPS)

NAT vs Academic Performance	Rho-Value	Degree of Relationship
Math	0.147	Negligible
Science	0.236	Slight

The relationship between the academic performance of schools with and without Mathematics and Science offerings and their corresponding National Achievement Test (NAT) Mean Percentage Scores (MPS) is presented in Table 6. The relationships were analyzed using Spearman's rank correlation coefficient (Rho-Value). The results reveal that the relationship between academic performance in Mathematics and NAT MPS is negligible, with a Rho-Value of 0.147. This indicates that academic performance in
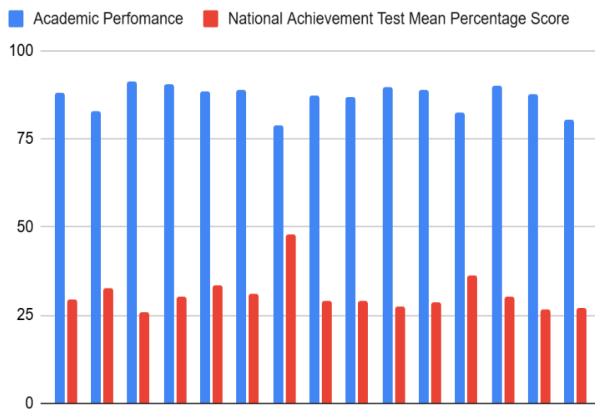

Figure 1 Difference between the Academic Performance and NAT results of schools with mathematics

Mathematics has little to no association with NAT results for schools, regardless of whether they offer Mathematics as part of their curriculum. Conversely, the relationship between academic performance in Science and NAT MPS is classified as slight, with a Rho-Value of 0.236, suggesting a weak positive association between the two variables.

These findings suggest that academic performance in Mathematics and Science is not a strong predictor of NAT outcomes in schools with or without these subject offerings. The negligible relationship in Mathematics and the slight relationship in Science could be attributed to several factors. First, curriculum misalignment may contribute to these weak associations. Academic grading often emphasizes different competencies than those assessed in the NAT, leading to inconsistencies between classroom performance and standardized test results. Cabiling-Ramos [7] similarly noted that disparities in assessment focus can dilute the relationship between academic and standardized test outcomes. Second, variability in instructional quality, including differences in teaching strategies and resource availability, may affect students' preparedness for the NAT [11]. Third, external factors, such as socioeconomic conditions and access to learning resources, can significantly impact standardized test performance, often overshadowing academic grades [12].

To address these issues, schools should enhance curriculum alignment by ensuring that academic grading systems and instructional practices focus on competencies assessed in the NAT. This alignment, as recommended by Mirabueno and Boyon[16], can help ensure that classroom performance effectively translates into standardized test success. Additionally, targeted support should be provided to schools that do not offer Mathematics or Science, equipping them with the necessary training and resources to improve student preparedness for NAT assessments [17]. Furthermore, strengthening foundational skills in Mathematics and Science through targeted interventions can help students perform better in both academic and standardized assessments [9]. Finally, addressing external factors, such as socio-economic challenges and access to learning materials, is essential to improving both academic and NAT performance [5].

The findings highlight weak relationships between academic performance and NAT results, underscoring the need for a more integrated approach to align academic achievement with standardized test preparedness. By addressing curriculum gaps, instructional quality, and external challenges, schools can improve overall student performance and ensure that academic grades reflect the competencies measured in national assessments.

The comparison between the academic performance and National Achievement Test (NAT) results in Mathematics for Grade 12 students in public senior high schools of the Negros Oriental Division reveals significant discrepancies. The academic performance, measured by General Weighted Average (GWA), predominantly falls within the "Very Satisfactory" and "Outstanding" categories, with scores ranging from 78.9 to 91.4. In contrast, the NAT Mean Percentage Scores (MPS) in Mathematics are categorized as "Low Proficient," ranging from 25.77 to 47.99. This stark difference indicates that while students perform well academically in classroom assessments, their performance in the standardized NAT does not reflect the same level of proficiency.

For instance, School 3 achieved the highest academic performance with a GWA of 91.4, classified as "Outstanding," but recorded one of the lowest NAT MPS scores at 25.77. Similarly, School 10 attained a "Very Satisfactory" GWA of 89.55 yet recorded a low NAT MPS of 27.37. On the other hand, School 7, which had a relatively lower academic performance with a GWA of 78.9 classified as "Fairly Satisfactory," achieved the highest NAT MPS of 47.99. These results highlight a misalignment between students' classroom performance and their standardized test results in Mathematics.

The disparity between academic performance and NAT results may stem from several factors. One possible reason is the difference in assessment focus. While academic grades often reflect classroom participation, homework, and formative assessments, the NAT evaluates students' critical thinking, problem-solving, and ability to apply knowledge, which may not be equally emphasized in daily classroom instruction [7]. Additionally, the NAT evaluates standardized competencies across schools, which may differ from the localized curriculum and teaching approaches adopted by individual schools [17]. Furthermore, students who achieve

high academic grades may lack the specific preparation required for the unique structure and rigour of standardized tests like the NAT [11].

To address these issues, it is essential to align school curriculums and assessment practices with the competencies and structure of the NAT. Such alignment would ensure that academic performance more effectively translates into standardized test success [16]. Schools should also implement targeted programs aimed at improving students' test-taking skills and familiarity with NAT question formats, particularly in Mathematics. Strengthening problem-solving, analytical thinking, and the real-world application of Mathematics concepts in daily instruction can further prepare students for both academic and standardized assessments [9] .Additionally, professional development programs focusing on NAT-aligned teaching strategies can empower teachers to bridge the gap between academic and standardized assessments [5].

The observed differences between academic performance and NAT results in Mathematics highlight the need for comprehensive strategies to align classroom instruction and assessments with standardized testing requirements. By addressing these gaps, schools can ensure that students' academic achievements are more reflective of their performance in national assessments, fostering consistency and improvement in overall educational outcomes.
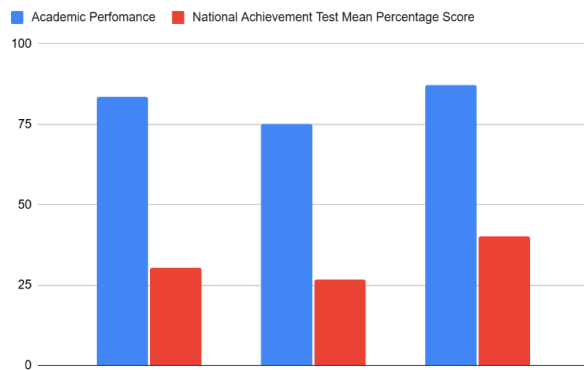

Figure 2 Difference between the Academic Performance and NAT results of schools with science

The comparison between the academic performance and National Achievement Test (NAT) results in Science for Grade 12 students in public senior high schools in the Negros Oriental Division reveals noticeable disparities. The academic performance, measured through the General Weighted Average (GWA), ranges from 75 to 87.15, corresponding to descriptors from "Fairly Satisfactory" to "Very Satisfactory." In contrast, the NAT Mean Percentage Scores (MPS) range from 26.86 to 40.21, all classified under the "Low Proficient" category.

School 3 achieved the highest academic performance with a GWA of 87.15, categorized as "Very Satisfactory," and also recorded the highest NAT MPS of 40.21. This indicates that School 3's academic results in Science are more closely aligned with its standardized test performance. On the other hand, School 1, which achieved a "Satisfactory" GWA of 83.55, recorded a NAT MPS of 30.35. Meanwhile, School 2,

with the lowest academic performance (GWA = 75, "Fairly Satisfactory"), also recorded the lowest NAT MPS of 26.86.

The discrepancies suggest that while there is some alignment between higher academic performance and better NAT results in Science, the overall proficiency remains in the "Low Proficient" range. This disparity may arise from differences in the focus of classroom assessments and the competencies measured in the NAT. Academic grades often emphasize a broader range of activities, including classroom participation and assignments, whereas the NAT assesses specific competencies such as problem-solving, critical thinking, and data analysis [7]. Additionally, students may lack sufficient preparation for the standardized test format, which could impact their performance despite strong classroom results [17].

To address these issues, schools should align their Science curricula and assessment practices with the competencies tested in the NAT to improve consistency between academic and standardized test results [16]. Providing targeted interventions, such as remedial programs or enrichment activities, can also help students strengthen their problem-solving and analytical skills. Furthermore, professional development for teachers focusing on NAT-specific teaching strategies and assessment methods can improve students' preparedness for the test [5]. Incorporating hands-on and inquiry-based learning approaches in Science instruction can also enhance students' engagement and understanding, which may translate to improved test performance [11].

In conclusion, while there is a modest alignment between academic performance and NAT results in Science, the overall "Low Proficient" classification highlights the need for curriculum alignment, enhanced instructional strategies, and focused interventions to bridge the gap between classroom achievements and standardized test outcomes. These efforts can help ensure that students' academic success is more accurately reflected in their NAT results.
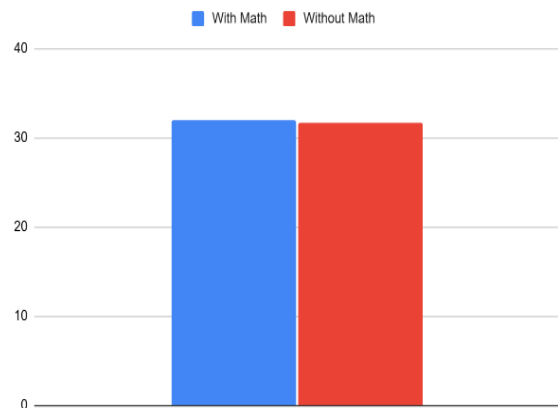

Figure 3Difference between the NAT results of schools with and without mathematics and science offering in grade 12

The comparison of National Achievement Test (NAT) results between schools with and without Mathematics and Science offerings in Grade 12 reveals marginal differences in performance. For Mathematics, the Mean Percentage Score (MPS) for schools with subject offerings is 31.89, while schools without Mathematics offerings have a slightly lower

MPS of 31.64. Similarly, for Science, schools with subject offerings recorded a higher MPS of 35.06, compared to 33.58 for schools without Science offerings.

The small differences in NAT results suggest that having subject offerings does not significantly impact standardized test performance. This could indicate that other factors, such as instructional quality, student readiness, and resource availability, play a more substantial role in influencing NAT outcomes than the mere presence of subject offerings. Previous studies have highlighted the importance of factors such as curriculum alignment, teacher expertise, and socio-economic conditions in shaping standardized test performance [17, 12].

For Mathematics, the minimal difference in MPS between schools with and without subject offerings may reflect a lack of alignment between the academic curriculum and the competencies measured in the NAT. Schools with Mathematics offerings might still struggle to emphasize the problem-solving and critical-thinking skills required for standardized tests [5]. For Science, the slightly better performance of schools with subject offerings could indicate that exposure to formal Science education contributes positively to test results, albeit modestly. However, the difference remains insufficient to achieve higher proficiency levels, emphasizing the need for targeted interventions [9].

CONCLUSION

This study highlights the relationship between academic performance and National Achievement Test (NAT) results in Mathematics and Science among Grade 12 public senior high schools in the Negros Oriental Division. The findings reveal discrepancies between students' academic grades and their NAT scores, with most schools achieving high General Weighted Averages (GWAs) but performing at the "Low Proficient" level in the NAT. This misalignment underscores the need for a more integrated approach to align classroom instruction, assessment practices, and the competencies measured in standardized tests.

The weak correlations between academic performance and NAT results, especially in schools with and without subject offerings, further emphasize the need for targeted interventions. Strand-specific NAT assessments, curriculum realignment, teacher professional development, and test preparation programs are essential strategies to bridge the gap between academic and standardized test performance. Addressing socio-economic and external factors influencing learning, such as access to resources and mental health support, will also play a critical role in improving outcomes.

In conclusion, the study demonstrates that while academic performance in Mathematics and Science is commendable in many schools, the NAT results indicate significant areas for improvement. By implementing the proposed recommendations, schools in the Negros Oriental Division can enhance both academic and standardized test performance, ensuring that students are better equipped for higher education, employment, and lifelong learning.

RECOMMENDATIONS
Curriculum and Assessment Alignment

To improve academic performance and NAT Mean Percentage Scores (MPS), it is recommended that the National Achievement Test (NAT) be redesigned to align with the specialized strands of senior high school. A strand-specific NAT would ensure that the assessment evaluates competencies and skills relevant to students' chosen tracks, such as the Academic, Technical-Vocational, or Arts and Design strands. This approach will provide a more accurate representation of student abilities and preparedness for further education or employment. Additionally, aligning school curricula and classroom assessments with the NAT's focus on critical thinking, problem-solving, and analytical skills will ensure that students are better prepared for the demands of standardized testing.

Teacher Development and Instructional Quality

Continuous professional development programs for teachers should emphasize innovative instructional strategies, including inquiry-based learning, technology integration, and NAT-focused teaching methods. These initiatives will enhance teachers' ability to deliver effective lessons, particularly in Mathematics and Science. Providing access to specialized training workshops and peer learning opportunities will empower educators to address learning gaps and improve instructional quality across schools.

Student Support and Test Preparedness

Targeted interventions should be implemented for schools with lower academic performance and NAT scores. These may include supplementary programs, such as remedial classes, peer mentoring, and additional learning materials designed to address specific weaknesses. Furthermore, conducting mock NATs and practice tests will familiarize students with the test format and reduce anxiety, boosting their confidence and performance during the actual assessment.

Addressing External Factors

Holistic approaches should be adopted to address socio-economic and environmental factors influencing student performance. Schools should provide equitable access to learning resources, including textbooks, technology, and learning aids. Programs supporting students' mental health and well-being should also be prioritized to create an environment conducive to learning. Collaborative efforts involving parents, local communities, and educational stakeholders can further support students in achieving their full potential.

Monitoring and Evaluation

The effectiveness of these recommendations must be regularly monitored and evaluated. Schools should establish performance benchmarks and metrics to measure the impact of interventions on academic performance and NAT results. Feedback from these evaluations will help identify successful strategies and areas requiring further improvement, ensuring continuous progress toward enhanced educational outcomes.

By addressing these recommendations systematically and collaboratively, Grade 12 public senior high schools in the Negros Oriental Division can significantly improve academic performance and NAT MPS, equipping students with the skills and knowledge necessary for future success.

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