JOURNAL OF INTERDISCIPLINARY PERSPECTIVES

ISSN Print: 2984-8288, ISSN Online: 2984-8385
Vol. 3 No. 6, pp. 605-617, June 2025

Factors Affecting the Performance of Students in the National Achievement Test

Rhoda G. Reyno*, Rodel B. Guzman
Isabela State University, Echague, Isabela, Philippines
Department of Education, Rizal Region National High School, Alicia, Isabela, Philippines

*Corresponding Author Email: reynorhoda@gmail.com

Date received: April 12, 2025
Date revised: May 5, 2025
Date accepted: June 2, 2025

Originality: 94%
Grammarly Score: 99%
Similarity: 6%

Recommended citation:
Reyno, R. & Guzman, R. (2025). Factors affecting the performance of students in the national achievement test. *Journal of Interdisciplinary Perspectives*, *3*(6), 605–617. https://doi.org/10.69569/jip.2025.255

Abstract. Achievement tests are essential in assessing educational outcomes and student performance in various subjects. Previous literature has revealed that demographic and administrative factors often affect their results. This study aims to determine the influence of socio-demographic characteristics, teaching effectiveness, and management practices on National Achievement Test (NAT) outcomes among Grade 10 students in the Schools Division of Isabela to provide a basis for an enhancement program. Quantitative research under descriptive-correlational research design was used to collect data from 12 schools and analyze their performance in English, Filipino, Mathematics, and Araling Panlipunan. Results revealed that disparities in performance across subjects, with students struggling the most in Mathematics (M=37.74, low proficient) and critical thinking components. Additionally, socio-demographic factors such as parental education (τb = 0.099, p = .015), economic status (τb = 0.127, p=.001), and school size (τb = -0.126, p =.002) significantly impacted test outcomes, highlighting the need for targeted support. Teaching effectiveness, specifically preparation for instruction and management practices, was also a vital determinant of performance. These findings highlighted the necessity of systemic reforms that center on equitable resource allocation, consistent professional development, and leadership development in schools. This paper suggests that to improve the NAT performance, there is a need for a change of paradigm in the curricula towards a more responsive and evidence-based policy making.

Keywords: Education reform; Management practices; National Achievement Test; Socio-demographic factors; Teaching effectiveness.

1.0 Introduction

The role of achievement tests is to evaluate and assess the educational progress and competency of students in different subjects. However, test results are affected by a combination of demographic and administrative factors. For educators, policymakers, and researchers to interpret test results effectively and implement effective pedagogical strategies, they must know these impacts. Under DepEd Memo 55, series of 2016, the National Achievement Test for Grade 10 (NAT G10) is an integral part of student exit assessments designed to ascertain whether graduating learners are meeting the standards in the Junior High School curriculum (Department of Education, 2023). The test covers the 21st-century skills: problem solving, information literacy, and critical thinking. Its scope includes the learning areas in English, Science, Mathematics, Filipino, and Araling Panlipunan as content. The test's design is progressive, with varying difficulty levels in a multiple-choice format using English and the Filipino language. Despite its importance, many schools have yet to attain appreciable scores in English at the junior high school level, leading to average NAT performance. Prior research has identified that different variables influence students' performance on standardized tests. Students' academic achievement is subject to

economic status, parental education, and cultural background, as stated by Shahjahan et al. (2021). The effectiveness of teaching, including teacher qualifications and instructional practices, is undoubtedly a vital factor in influencing student outcomes (Blömeke et al., 2016). There is also a great deal of evidence that management practices within schools - how resources are allocated, for example, or leadership styles - influence the learning environment and student performance (Leithwood, 2021).

Behiga (2022) mapped the results of NAT for Grade 6 from 2016-2018 and Grade 12 learners in 2018-2019. His analyses revealed an alarming result: the NAT in 2011-2012 had an almost 50% decline in 2016-2017. The same group of students was tested four years apart, leading to Behiga's conclusion that implementing the K-12 program did not yield the desired effect on the learners' proficiency levels. This observation was verbalized by then Education Secretary Leonor Briones, who stated that the NAT results "gravitate towards the low proficiency levels," especially in Science, Math, and English (Malipot, 2019).

Socio-demographic factors encompass many student characteristics, including sex, economic status, parental education levels, cultural background, family size, and school size. These elements collectively shape students' educational environment and experiences, significantly impacting their test performance (El Refae et al., 2021). Munir et al. (2023) argued that a person's socioeconomic background is a vast time indicator of academic performance. Wealthy children often have more educational resources, like after-school classes, personalized teacher attention, and books, which is reflected in their academic achievement. By contrast, lower-socioeconomic children may experience obstacles with limited financial resources for school-related costs, lack of educational resources, and insufficient parental involvement, impacting school performance. Briones et al. (2021) found that the way parents behaved, the ages of the children, the degree of their proficiency in the use of the internet, and other factors, including lack of motivation and the socio-economic status of the family, all affected their academic performance (Bulut & Aslantepe, 2022).

It is important to note what might account for the disparities in National Achievement Test (NAT) attainment to improve the schools (Revilla & Estudillo, 2021). Taking the time to understand where these disparities come from and how to explain them equips leaders to allocate resources in ways that ensure equitable opportunities to success for every student. Policymakers can choose programs, resource allocation, and financial investments in schools based on data, not state test results. This skill provides the ability to recognize optimal practices and successful strategies that can be employed in diverse educational contexts, creating an atmosphere that allows all students to flourish.

Management practices, such as regulations, operational procedures, and organizational structure (Bilbao, 2019), affect how well students do in assessments. The areas to be included are its distribution of money, educator quality, curriculum, and testing. Submission of needs of schools, teaching skills, administration skills, and cooperation have to be carried out through an effective administration of the educational institutions. Better-performing schools, in turn, lead to higher learning outputs and increased test performance for students (Mburu et al., 2019). In contrast, they found that a poor-performing school had not done what it was supposed to teach, and as a result, students from these schools performed poorly on their tests.
Nevertheless, there are gaps within the present literature. Much research looks at single factors in isolation, not their combined effects. In addition, few detail-specific analyses and writings on junior high school learners have been conducted primarily in relation to the Philippine setting. Moreover, no systematic review has identified potential factors associated with influential factors and offered interventions based on the empirical findings.

This directly ties to SDG 4, Quality Education, which challenges everything related to fostering a quality and equitable education that will lead to lifelong learning opportunities for all types of access. This study aimed to identify these factors and markers of student success to understand disparities in NAT performance and identify barriers to ensuring all medically underserved Filipino communities receive quality education. The findings will be used to direct intervention programs uniquely designed to improve educational results and life changes in schools, particularly for disadvantaged/ marginalized students. Interventions to improve NAT performance will improve results in this national exam, achieving SDG 4 by ensuring all students receive quality education and guaranteeing them the knowledge and skills necessary for personal and professional development. This research will help provide information for educators, administrators, and policymakers that is crucial in making well-founded decisions, and contribute to raising the quality level of the educational system around the Philippines.

2.0 Methodology

2.1 Research Design

To attain the study's objectives, the researcher employed quantitative research under a descriptive-correlational research design to examine relationships between the Grade 10 students' NAT performance and other relevant factors such as socio-demographic factors, teaching effectiveness, and management practices. Understanding these relationships helps pinpoint which factors are most strongly associated with higher or lower NAT scores, guiding where interventions may be most effective.

2.2 Research Locale

The study encompassed the entire Schools Division of Isabela as a research locale. The Division is composed of 183 schools divided into six legislative districts. Twelve schools will be included in the study: three mega secondary schools, three large secondary schools, three medium secondary schools, and three small secondary schools.

2.3 Research Participants

The study's respondents are 377 Grade 10 Junior High School students within the Schools Division Office of Isabela who are enrolled in the SY 2023-2024. These respondents were identified through convenience sampling. They are utilized to generate information on the perceived factors affecting the performance of Junior High School learners in the National Achievement Test.

2.4 Research Instrument

The researcher used a combination of adopted and self-designed survey questionnaires to determine the management practices of school heads in the Division of Isabela. The first part of the questionnaire identifies the respondents' demographic profile. The second part is an adopted Evaluation Instrument for Teaching Effectiveness from Isabela State University. The third part is a self-developed 4-point Likert scale anchored on the Competency Framework for Southeast Asian School Heads (2014) by SEAMEO INNOTECH on measuring the management practices of the school heads. This instrument has five subscales informed by the domains in the said competency framework. The researcher will validate this part of the questionnaire with field experts and pilot-test it to ensure its reliability. To confirm the reliability of the items within each subscale, Cronbach's alpha will be used for reliability testing. A Cronbach's alpha value above 0.70 ($\alpha > .70$) will indicate that the instrument is reliable and suitable for use in the study. The researcher employed a documentary analysis to determine the NAT mean percentage score for each institution. The data was requested from the concerned department in the Schools Division Office.

2.5 Data Gathering Procedure

The data collection for this research model started with conceptualizing and finalizing the research proposal and instrument. In the beginning phase, the researcher designed the questionnaire to measure the management practices of the heads of schools as precisely as possible, according to the study's objectives. A panel of experts reviewed and validated the questionnaire, and appropriate revisions were made based on their inputs. After the revision, the researcher appealed to the Dean of the Graduate School to permit the study through a permit form. The researcher also secured written permission from the Schools Division Office and the heads of selected schools in Isabela.

After obtaining the required permissions, validated questionnaires were distributed to the selected school's student respondents. At the same time, the researcher requested the required documents to ascertain the National Achievement Test (NAT) mean percentage score per institution. The information needed was requested from the Schools Division Office. Once the data is collected, it is tallied, collated, and encoded into an Excel spreadsheet and sent to a statistician for appropriate statistical analysis. After receiving the analyzed data, the researcher interpreted and synthesized the results presented to the panel for review and validation. The researcher ensured that it followed all the ethical principles and standards to protect and respect the rights, dignity, and well-being of the respondent throughout the study.

2.6 Ethical Considerations

The researchers upheld strict ethical standards in the study to protect all participants. Participants were fully

informed about the purpose of the study, their voluntary involvement, and their right to withdraw at any time without consequence. Confidentiality and anonymity were maintained using coded data; no identifying information was disclosed in the results. The researchers took great care to avoid causing harm or discomfort, particularly when addressing sensitive socio-demographic information. The study was guided by respect, integrity, and academic honesty, ensuring that all data were collected and reported truthfully. Furthermore, findings from this research aim to benefit the educational community by providing a basis for meaningful intervention and policy development, thereby contributing to improved student outcomes and equitable education practices.

3.0 Results and Discussion

3.1 National Achievement Test Performance

Table 1 presents the National Achievement Test (NAT) performance of schools in Isabela across various subject areas, categorizing performance into problem-solving, information literacy, and critical thinking components. These three components represent essential cognitive skills necessary for academic success. Problem-solving refers to the ability to apply knowledge and strategies to find solutions. Information literacy pertains to the ability to locate, evaluate, and use information effectively, while critical thinking involves analyzing, interpreting, and making reasoned judgments. However, the way these skills manifest varies across subjects.

Table 1. *National Achievement Test of Grade 10 Students in Isabela in 2023*

Subject	Area	Mean	Proficiency Level
English	Problem Solving	54.77	Nearly Proficient
	Information Literacy	47.21	Low Proficient
	Critical Thinking	45.35	Low Proficient
	Sub mean	**49.11**	**Low Proficient**
Filipino	Problem Solving	52.13	Nearly Proficient
	Information Literacy	55.17	Nearly Proficient
	Critical Thinking	54.17	Nearly Proficient
	Sub mean	**53.82**	**Nearly Proficient**
Mathematics	Problem Solving	38.18	Low Proficient
	Information Literacy	37.18	Low Proficient
	Critical Thinking	37.86	Low Proficient
	Sub mean	**37.74**	**Low Proficient**
Araling Panlipunan	Problem Solving	54.74	Nearly Proficient
	Information Literacy	55.68	Nearly Proficient
	Critical Thinking	47.27	Low Proficient
	Sub mean	**52.56**	**Nearly Proficient**

Legend: 90 – 100 Highly Proficient, 75 - 89 Proficient, 50 - 74 Nearly Proficient, 25 - 49 Low Proficient, 0 - 24 Not Proficient.

In the English subject, the total mean scores across all schools indicate the highest performance in the Problem-solving component (M=54.77), but only at the "Nearly Proficient" level at best. The lowest is the Critical Thinking component (M=45.35), categorized at the "Low Proficient" level. This suggests that students, on average, demonstrated strong competencies in applying problem-solving strategies and lower critical thinking skills in the English subject. The students need improvement to be considered proficient. In Filipino subject, the total mean scores reveal the highest performance in Information Literacy (M=55.17) and the lowest in Filipino-Problem Solving (M=52.13). However, all three areas are categorized as "Nearly Proficient". Thus, the difference between the highest and lowest areas is negligible. The sub mean for Filipino is 53.82, indicating an overall "Nearly Proficient" rating. Nonetheless, it still shows that the schools are more literate in information literacy than problem solving when involving the Filipino subject. Unlike in English, problem-solving in Filipino pertains more to language-based reasoning, such as understanding nuances, cultural contexts, and idiomatic expressions. Information literacy focuses on reading comprehension in Filipino texts, while critical thinking emphasizes making logical interpretations based on historical and literary contexts.

Among all the content areas, the highest performance in Mathematics was observed in the Critical Thinking (M=37.86) area, while the lowest was in Information Literacy (M=37.18). This subject has more consistent results than the other subjects since the areas with the highest and lowest performance are more or less similar. However, this also means that all areas of mathematics were rated at "Low Proficient" levels. Problem-solving in Mathematics requires students to apply formulas and logical reasoning to quantitative problems. Information literacy pertains to interpreting numerical data, graphs, and mathematical texts, while critical thinking is

demonstrated through analyzing patterns, constructing proofs, and justifying solutions. Mathematics performance is notably low, and students need substantial improvement in understanding and applying mathematical concepts. The sub mean for Mathematics is 37.74, categorized as "Low Proficient."

In Araling Panlipunan, both Problem Solving (M=54.74) and Information Literacy (M=55.68) were classified as Nearly Proficient, while Critical Thinking (M=47.27) fell into the Low Proficient level. The students appear to have stronger competency in recalling and interpreting information rather than critical thinking, where results are more varied and concerning. Like Filipinos, Araling Panlipunan shows stronger problem-solving and information literacy outcomes. In Araling Panlipunan, problem-solving refers to applying historical and societal knowledge to real-world situations, such as decision-making in governance and economics. Information literacy involves evaluating sources, understanding historical narratives, and recognizing bias, while critical thinking requires students to assess events, form evidence-based arguments, and predict socio-political outcomes. The sub-mean for Araling Panlipunan is 52.56, also classified as "Nearly Proficient."

Across all subjects, the data revealed a concerning trend in critical thinking, where students consistently performed at lower proficiency levels. This suggests that while students can recall and apply learned knowledge in familiar contexts, they find it hard to analyze, evaluate, and synthesize information independently. Abysmal performance was seen in mathematics across all three domains, indicating an urgent need for pedagogical approaches that support problem solving and conceptual understanding. According to Shanta and Wells (2022), students' difficulties in critical thinking are often linked to traditional instructional approaches that prioritize memorization over active problem-solving. Additionally, the disparity between English and Filipino results may reflect differences in language proficiency and comprehension strategies, as Shadiev et al. (2022) noted, who emphasized that language familiarity significantly influences students' ability to process and analyze information in academic settings. These findings highlight the importance of integrating higher-order thinking skills across all learning areas and ensuring that instruction goes beyond rote memorization to promote deeper understanding and analytical reasoning.

3.2 Relationship between Sociodemographic Profile and NAT Performance

The succeeding tables present the correlation matrix between the National Achievement Test (NAT) performance across various subject areas and socio-demographic factors. Kendall's tau b was employed to determine the relationships between the NAT scores and socio-demographic profiles. This non-parametric test was used to assess the strength and direction of the association between the subject-specific scores and the demographic variables.

Table 2. *Correlation Matrix between Sociodemographic Profile and NAT Performance in English*

Socio-demographic Profile	Problem Solving	Information Literacy	Critical Thinking
	Coefficient (τb)	Coefficient (τb)	Coefficient (τb)
Sex	.01	.00	.01
Economic Status	-.06	-.04	-.02
Parental Education (Father)	.09*	.08*	.07
Parental Education (Mother)	.06	.03	.02
Cultural BG	.05	.04	.02
School Size	.07	-.00	-.03
No. of Siblings	.04	.05	.03

*Legend: * = significant*

In the English subject, as presented in Table 2, a significant positive relationship was observed between paternal education and English-Problem Solving (τb = 0.099, p = .015) and even English-Information Literacy (τb = 0.086, p = .034). Perhaps more literate fathers have a wider variety of reading resources, encourage a higher level of discourse in the home, and set higher academic goals for their children, leading to improved performance. On the other hand, it also may suggest that students whose fathers are less educated are disadvantaged when developing skills related to their evaluation of English, perhaps owing to a lack of access to literacy-rich environments. Meanwhile, no significant relationships were found for English-Critical Thinking and the profile variables.

Such a positive correlation between paternal education and English performance supports the findings of Kapengut and Noble (2020), which highlighted the role of parents' education in language-related competencies, especially regarding reading comprehension and analytical capabilities. On a broader level, as discussed by Davis-Kean et al. (2021), parental education typically results in more access to educational resources and a bigger focus

on language development at home, which might explain better performance in English problem-solving and information literacy tasks. Parents' education level is also known to significantly impact their students' language and critical thinking skills, particularly as Bañales et al. (2020) found that students with highly educated parents tend to grow up in homes rich with language exposure. The lack of a significant relationship between English and critical thinking could imply that instructional strategies and curriculum design have a greater impact on critical thinking skills in language than socio-demographic factors.

Table 3. *Correlation Matrix between Sociodemographic Profile and NAT Performance in Filipino*

Socio-demographic Profile	Problem Solving	Information Literacy	Critical Thinking
	Coefficient (τb)	Coefficient (τb)	Coefficient (τb)
Sex	.06	-.04	-.03
Economic Status	-.04	.06	.12*
Parental Education (Father)	.03	.07	.00*
Parental Education (Mother)	.01	.07	.04*
Cultural BG	-.00	-.01	-.12
School Size	-.11*	.00	-.16
No. of Siblings	-.02	.01	-.01

*Legend: * = significant*

In Filipino subject, significant positive correlations were found between Filipino-Critical Thinking with economic status (τb = 0.127, p = .001) and paternal education (τb = 0.007, p = .864) and maternal education (τb = 0.040, p = .328). This suggests that students from higher economic backgrounds tend to develop better critical thinking skills in Filipino, implying that these students have greater access to supplementary learning materials, enrichment programs, and language exposure at home. The study of Pishghadam et al. (2011) showed that the variables of primary interest, i.e., social capital, cultural capital, and parents' educational levels, have significant and important influences on achievement.

These findings also imply that educational disparities rooted in economic and educational backgrounds can perpetuate cycles of advantage and disadvantage. While some students from lower socio-economic backgrounds demonstrate resilience and achieve high levels of critical thinking, the overall trend underscores the need for policies and interventions that address inequities in access to quality education and parental support. This is consistent with other findings showing that children do better academically when their parents have higher levels of education. Liu et al. (2020) examined the relationships between five factors (i.e., parental education, parental involvement, school strategies, cultural background, and economic status) with students' academic achievement across seven subjects, including mathematics, languages, science, and social science. Likewise, Kwarteng et al. (2022) reported that children from parents with relatively high levels of education are more likely to develop critical thinking skills due to enriched home environments that encourage inquiry and discussion. These studies indicate that the parental educational background may come with a conducive atmosphere, enabling critical thinking development within students.

Furthermore, a significant negative relationship was also observed between school size and performance in Filipino-Problem Solving (τb = -0.111, p = .007). This potentially means that students from larger schools tend to have lower scores in this area. This result might be due to the greater student-to-teacher ratio in bigger schools. They may also face challenges that negatively impact students' problem-solving skills, such as less individualized attention, reduced teacher-student interaction, and possible difficulties in classroom management. As a result, it leads to less individualized instruction and limited teacher-student interaction. In the Philippines, large class sizes significantly negatively affect both teachers and students, impacting classroom management, academic performance, and teacher well-being. Smaller classes are more conducive to learning and can lead to higher student achievement, particularly for students from disadvantaged backgrounds. According to Maringe & Sing (2014, students in large classes do not have the same opportunities to interact with the teacher as students in small classes. To offer large classes without sacrificing the quality of education, educators must understand how and why class sizes influence student engagement behaviors and educational outcomes. However, it may also indicate that smaller schools provide more targeted learning experiences, where students receive better guidance in problem-solving tasks in Filipino. Meanwhile, no significant relationships were found for Filipino Information Literacy and the profile variables.

Table 4. *Correlation Matrix between Sociodemographic Profile and NAT Performance in Math*

Socio-demographic Profile	Problem Solving	Information Literacy	Critical Thinking
	Coefficient (τb)	Coefficient (τb)	Coefficient (τb)
Sex	.09*	.05	.00
Economic Status	-.02	.02	.05
Parental Education (Father)	-.02	-.00	.04
Parental Education (Mother)	-.11*	-.07	.00
Cultural BG	-.09*	-.06	.00
School Size	-.21*	-.19*	-.09*
No. of Siblings	.03	-.00	-.01

*Legend: * = significant*

In the Mathematics subject, significant positive correlations were found between sex and Mathematics-Problem Solving (τb = 0.099, p = .024). These results imply that male students might have a slight advantage in problem-solving tasks in Mathematics. The result was consistent with the result of the study of Meelissen and Luften (2008), stating that gender-related to mathematical learning outcomes, such as the results of research presented by that mathematical achievement, including mathematical problem-solving achievement of the male student was better than that of the female student. Based on these results, mathematics teachers must create a learning process that enables all students to practice improving their mathematical connection ability. Hence, they can succeed in solving mathematical problems.

Also, a significant negative correlation was found between Math-problem Solving and maternal education (τb =-.118), cultural background (τb = -.097), and school size (τb =-.214). The negative correlation to maternal education suggests that higher maternal education is associated with lower math problem-solving scores among students. This contradicts most current research, often revealing a positive or neutral link between children's math achievement and their mothers' education. It might indicate contextual elements that unintentionally impair or hinder student achievement, like disparities in parental participation, expectations, or possibly pressures related to higher maternal education. The negative correlation to cultural background suggests that students from these backgrounds may face barriers, such as language differences, educational values, or systemic biases, that impact their performance.
In contrast, the negative correlation to school size indicates that students in larger schools tend to perform worse in math problem-solving tasks. Students from larger schools and those whose mothers have lower educational attainment tend to struggle more. A potential explanation is that larger school environments are too crowded and provide fewer personalized learning opportunities in math, and maternal education influences how students develop numerical literacy at home. Burns P. M. conducted a study in 2020 that discussed the connections between children's math abilities and their educational ambitions, family environment, and maternal education. Numerous studies have found that more educated women tend to devote more time to pursuits that improve the literacy and numeracy of their children.

Mathematics-Information Literacy also showed a significant negative relationship with school size (τb = -0.197, p = .000), and Mathematics-Critical Thinking was also negatively correlated with school size (τb = -0.099, p = .017). These findings indicate that students in larger schools are less likely to perform well in both information literacy and critical thinking in math. This could mean that large class sizes limit the opportunity for in-depth discussions, hands-on activities, and personalized guidance in mathematical reasoning. On the other hand, smaller schools may provide a more structured learning environment that fosters analytical thinking and a deeper understanding of mathematical concepts.

The association between school size and poorer mathematics performance is consistent with the research by Guryan et al. (2023) on large educational settings, which tend to decrease individualized instruction and lead to lower student engagement and performance. Koussihouèdé (2020) also believed that larger schools dilute attention and worsen mathematics achievement. The suggested association between sex and mathematics performance may arise from gender differences in mathematics success (Fischer & Thierry, 2022), particularly the minor and stable differences in favor of boys on math performance in specific contexts. On the other hand, the negative association between paternal education and problem vocabulary performance is likely to be context-specific because previous studies (Kapengut & Noble, 2020; Bañales et al., 2020; Davis-Kean et al., 2021) have typically reported positive relationships between parental education and the child's academic achievement. These

results highlight the importance of context in interpreting the impact of some socio-demographic variables on mathematics performance. These findings emphasize the role of socio-demographic factors in shaping student performance across different subjects. Surprising findings include the relative impact of parental education, economic status, and the size of the school attended by the child, which always indicate that educational outcomes of children are at least as much a product of social and economic forces beyond the school as they are of the instruction received in the school. Recognizing these disparities is crucial in designing policies that ensure equitable access to quality education, particularly for students from disadvantaged backgrounds.

Table 5. *Correlation Matrix between Sociodemographic Profile and NAT Performance in Araling Panlipunan*

Socio-demographic Profile	Problem Solving	Information Literacy	Critical Thinking
	Coefficient (τb)	Coefficient (τb)	Coefficient (τb)
Sex	-.04	.01	-.05
Economic Status	.06	.01	.15*
Parental Education (Father)	.05	.03	.01
Parental Education (Mother)	.08*	.02	.05
Cultural BG	-.02	-.03	-.09*
School Size	-.10*	-.13*	-.12*
No. of Siblings	-.01	-.02	-.06

*Legend: * = significant*

For the Araling Panlipunan subject, a significant positive relationship was found between maternal education and performance in Araling Panlipunan-Problem Solving (τb = 0.081, p = .045). It means that students whose mothers have higher educational attainment tend to perform better in problem-solving tasks related to social studies. A possibility is that this is due to greater exposure to discussions on historical and civic issues at home, with engaging conversations with their mothers. This implies that mothers with higher education levels are more likely to provide an enriching home environment, offer academic support, and foster positive attitudes toward learning, which translates to better problem-solving skills and higher achievement in Araling Panlipunan. Educated mothers are also more involved in their children's schooling, participate in school activities, and set higher educational expectations, all of which contribute to improved student outcomes. According to Seden et al. (2020), mothers' education level has been linked to children's cognitive ability as early as three months old. Numerous studies have found that more educated women tend to devote more time to pursuits that improve the literacy and numeracy of their children. These findings demonstrate the value of empowering women via education since their involvement and expertise can improve their children's cognitive growth and academic achievement in important areas. Educational institutions and policymakers may consider initiatives encouraging parental involvement and education to improve students' performance in problem-solving and other academic domains.

A positive significant relationship was also found between economic status and Araling Panlipunan- Critical Thinking (τb = 0.150, p = .000). Students with more affluent economic backgrounds tend to excel in critical thinking due to better access to learning resources. This suggests that students from higher-income families would have easier access to materials that improve their critical thinking skills in history, economics, and governance, including books, educational aids, and technology. Furthermore, more financially stable families are more likely to offer enriched learning contexts, such as discussions about current affairs or involvement in extracurricular activities that foster critical thinking. The results also underscore systemic inequities, as students from lower socioeconomic backgrounds may lack similar opportunities, potentially widening achievement gaps in critical thinking skills. Schools might prioritize community partnerships that offer mentorship or resources to marginalized children, teacher training in varied instruction, and equitable access to high-quality instructional materials as ways to address the issue. To guarantee that all students in Araling Panlipunan acquire the critical thinking skills required for active citizenship and academic success, policymakers may want to integrate socioeconomic support programs with curriculum initiatives.

This finding is consistent with Idris et al.'s (2020) findings that children with more educated parents perform better academically. A meta-analysis conducted by Wilder (2023) showed that parental involvement positively affects students' academic achievement across subjects. The results also imply that both mothers' education and providing a supportive environment develop problem-solving and critical-thinking skills among students, highlighting the importance of family engagement and support in educational outcomes. Furthermore, the relationship between economic position and critical thinking is consistent with other studies demonstrating how socioeconomic factors affect educational attainment and cognitive development.

Additionally, school size showed a significant negative relationship with both Araling Panlipunan-Problem Solving (τb = -0.107, p = .009), Araling Panlipunan-Information Literacy (τb = -0.130, p = .002), and Critical Thinking (τb = -.126). From this, larger schools possibly offer less attention to instruction and fewer interactive discussions, which are known to hinder student performance in these areas. A study by Chen (2024) also found that larger class sizes can hinder customized instruction and decrease academic performance. Similarly, Hanushek (2020) noted that when class and school sizes become too large, a student's average attention drops, impairing individualized instruction, which can hurt academic performance. These studies have favored the smaller schools as a friendlier place to learn critical thinking skills.

Araling Panlipunan-Critical Thinking was also found to have a significant negative relationship to cultural background (τb = -0.098, p = .018). This could be due to cultural differences in learning styles, values, or perspectives that affect how students engage with the content, which heavily involves Philippine history, culture, and civic concepts. For example, some cultural contexts may emphasize rote memorization or respect for authority over questioning and analytical thinking, essential for Araling Panlipunan's critical thinking. Additionally, the curriculum's focus on national history and cultural identity might not fully resonate with or be accessible to students from diverse cultural backgrounds, limiting their ability to analyze and reflect on the material critically. A negative correlation with cultural background suggests that specific cultural influences may shape how students engage with analytical and evaluative tasks in social studies. This situation also highlights the need for culturally responsive teaching approaches that acknowledge and integrate students' cultural contexts to foster critical thinking skills better.

3.3 Relationship between NAT Performance, Teaching Effectiveness, and Management Practices

Table 6. *Correlation Analysis of NAT Performance and Teaching Effectiveness*

Domain	Mean	SD	Coefficient(τb)	p
Commitment	3.30	0.40	-.03*	.400
Preparation for Instruction	3.33	0.40	.03*	.440
Classroom Management and Teaching for Independent Learning	3.38	0.41	-.05*	.190
Knowledge of the Subject Matter	3.35	0.42	-.02	.670
Instructional Skills and Management of Learning	3.29	0.39	.03	.460

*Legend: *=significant*

Analysis reveals a significant positive relationship between preparation for instruction and the NAT performance (τb = 0.03, p = 0.44). Preparation for Instruction refers to the planning and organization of materials, activities, and strategies by educators to effectively engage students in learning. It includes setting goals, considering students' current academic levels, and creating a systematic plan to guide students towards those objectives through a cycle of planning, teaching, assessing, and adjusting instruction based on evaluation results. This preparation is essential for maximizing student engagement, optimizing learning outcomes, and ensuring effective classroom management. This implies that the more thoroughly teachers prepare for their lessons, the better their students tend to perform on standardized assessments. This underscores the critical role of teacher proficiency and instructional planning in fostering student achievement, such as showing enthusiasm in teaching the topic, preparing appropriate instructional materials, giving lesson guides/topics with a time frame and references, and the teacher should be well-groomed and well-poised. When a teacher shows genuine enthusiasm for the topic, it creates a positive and engaging learning environment that motivates students to participate actively and develop a deeper interest in the subject matter. Lessons are made clear, relevant, and accessible by creating appropriate instructional materials for the students' needs. This promotes improved comprehension and retention of concepts. In addition to keeping the teacher and students organized, a well-structured lesson plan or subjects with a defined time frame and references help maintain a fluid instructional flow and guarantee that learning objectives are fulfilled within the allocated time.

It follows that to improve teachers' content understanding and instructional practices and guarantee alignment with NAT standards, educational institutions should invest in specific training programs, continuous professional development, and support mechanisms. By doing this, schools can close performance gaps and improve overall academic results while acknowledging that other elements—like student involvement, instructional strategies, and institutional support—also play a role in success and should be considered in an all-encompassing approach to educational development. The result that preparation for instruction correlates positively with their

performance on the NAT complements the work of Abramczyk and Jurkowski (2022), who studied the relationship between the way lessons are planned and designed with their students' performance. On the other hand, the lack of significant results in subject matter knowledge and instructional skills points to the complex interrelationships affecting student performance, which other factors might influence in addition to teacher levels of competencies.

On the other hand, a significant negative relationship was found between teachers' "commitment" and the overall NAT performance (τb = -0.03, p = 0.40), and the same is true for "classroom management and teaching for independent learning" (τb = -0.05, p = 0.19). Commitment of teachers refers to the dedication, passion, and responsibility that educators demonstrate towards their profession and students. It encompasses the effort, time, and energy teachers invest in planning lessons, delivering instruction, assessing student progress, providing support, and fostering a positive learning environment. This commitment involves going above and beyond to ensure students' success, personal growth, and academic development. At the same time, Classroom Management refers to the strategies and techniques teachers employ to create a positive and productive learning environment within the classroom. It involves establishing routines, setting expectations, maintaining discipline, and fostering a safe and inclusive space for all students to engage in learning. Effective classroom management encompasses various aspects such as behavior management, student engagement, time management, and organization, all aimed at promoting a conducive atmosphere for teaching and learning.

This finding implies that higher levels of teacher commitment such as showing extra concern to students by referring their problems to the proper authorities if needed, attending class regularly, starts and dismisses class on time, accomplishes assigned tasks as scheduled, demonstrates sensitivity to student's learning ability, evaluating student performance objectively and records the same accurately and efforts to manage classrooms or foster independent learning such as paying attention to classroom atmosphere, involves students in the formulation of classroom policies in relation to the attainment of the course objectives, making students attentive, interests and responsive, adopts teaching strategies that encourage students to learn and apply concepts taught, allows students to think and make their own decisions independently, enhances student's self-concept/self-esteem through proper recognition of their attributes and differences of opinion during discussion, may not always translate into better student outcomes on standardized national assessments. Instead, it might suggest that some management or commitment styles might unintentionally emphasize teaching elements that are not in line with the knowledge or abilities assessed by the NAT, or it might even foster circumstances in which students are less prepared to meet the test's particular requirements. Qadach et al. (2020) also found similar results, noting that. In contrast, high commitment is critical; it does not automatically result in higher test performance levels unless well-delivered instruction has taken place.
No significant relationships were found between the domains of knowledge of the subject matter, instructional skills, and learning management. These results suggest that preparation for instruction positively affects student performance, but an overemphasis on commitment and classroom management most likely does not translate to higher academic performance.

Table 7. *Correlation Analysis of NAT Performance and Management Practices*

Domain	Mean	SD	Coefficient(τb)	p
Strategic Thinking and Management	3.72	0.42	-.04*	.390
Instructional leadership	3.71	0.42	-.03*	.430
Personal Excellence	3.73	0.42	-.01	.850
Stakeholder Engagement	3.79	0.48	-.02	.620
Managerial Leadership	3.76	0.39	-.01	.840

*Legend: *=significant*

Table 7 presents the correlation between overall NAT performance and various management practices. The analysis revealed a significant negative relationship between strategic thinking and management (τb = -0.04, p = 0.39), instructional leadership, and overall NAT performance (τb = -0.03, p = 0.43). Strategic Thinking and Management involves the ability to plan, envision, and execute long-term goals and initiatives to drive the overall success and development of the school. School leaders with strategic thinking skills can analyze data, identify strengths and weaknesses, anticipate challenges, and formulate effective strategies to enhance the school's performance, reputation, and educational outcomes. Furthermore, effective management by school heads involves overseeing daily operations, coordinating resources, fostering a positive school culture, and supporting

teachers and staff to create an environment conducive to teaching and learning whereas, Instructional Leadership entails guiding and supporting teachers in enhancing instructional practices, curriculum development, and student learning outcomes within the school. School leaders with strong instructional leadership skills work closely with educators to set academic goals, provide professional development opportunities, and implement effective teaching strategies. They play a crucial role in creating a culture of continuous improvement, fostering collaboration among teachers, and promoting excellence in teaching and learning.

This finding suggests that, in this context, increased emphasis on these leadership practices may not translate into higher student achievement on standardized assessments. The methods used to apply instructional leadership, strategic thinking, and innovation do not adequately match the current instructional needs or the knowledge and abilities evaluated by the NAT. It suggests that overemphasizing leadership projects or more general management techniques may take resources and attention away from focused exam preparation and in-class instruction, which are more strongly associated with better test results. Such results indicate that these managerial qualities, which include strategic thought and instructional leadership, are necessary to work with instruction but aren't the sole predictors of the overall outcomes from national assessments. This supports Bellibaş et al. (2021), who argued that schools' leadership strategies should be equally emphasized as direct support for the learners (such as instruction). This could mean leadership acts are more effective when supported by these hands-on instructional and teacher modeling strategies.

No significant relationships were found for the other domains of personal excellence, stakeholder engagement, and managerial leadership. Sure enough, the non-significant relationships with personal excellence, stakeholder engagement, and managerial leadership follow the results of Yu (2022), who explained that no management practice will lead to higher academic achievement if better quality curricula and greater student motivation do not accompany it. That might suggest that leadership balances instructional support and teacher mentoring more effectively. This result is a reminder that student performance will be limited at best without aligning leadership strategies with instructional priorities.

4.0 Conclusion

Based on the study's findings, the performance disparity among schools across all subjects highlights critical differences in student proficiency. Schools that scored above the mean, exceptionally high in English, Problem Solving, and Information Literacy, had much better pragmatic application and information handling skills. The reliably weak performing Critical Thinking scale points to a systemic challenge to increase higher-order cognitive skills, indicating the need for curriculum reviews and focused teaching strategies to address such gaps. The socio-demographic factors, especially parental educational attainment, financial background, and school magnitude, were important in NAT results for various subjects. However, the strength and nature of the relationship vary. The role of parents' educational attainment in fostering linguistic skills and access to learning resources is highlighted, confirming that parental attributes can provide an environment conducive to skill acquisition and application. On the other hand, the non-significant correlation with certain areas implies that ulterior variables associated with learners, such as the quality of instruction or unique pedagogical approaches, can potentially facilitate the acquisition of higher-order cognitive abilities at a much greater rate than socio-demographic influences alone.

In line with that, the negative relationship between school size and problem-solving is attributable to possible drawbacks of a high student-to-teacher ratio. Increased school size leads to reduced personalized instruction and limited interactive learning events. The consistent positive correlation between economic status and Critical Thinking reinforces the importance of socioeconomic capital, as it is likely better access to the benefits of learning aids, extracurricular activities, and enriched environments that promote mechanisms of good learning. The study's findings also point towards systemic issues of gender advantages, cultural expectations, variations in parenting roles, and priorities in Mathematics. A negative correlation matches gender differences in Problem-Solving performance with maternal education and cultural background. The repeated finding in various subjects correlating parents' educational and economic status with performance speaks to their fundamental role in academic achievement.

To address the variations in student performance linked to socio-demographic factors and parental education, teachers should adopt differentiated instructional strategies that accommodate diverse student needs. Teachers are also encouraged to employ culturally relevant pedagogy and provide equitable avenues for learning to

narrow gaps associated with economic and gender inequalities. Also, formative assessment should be regularly conducted to identify gaps and adequately address them through suitable interventions. The Project ASCEND (Achieving Success through Comprehensive Engagement and Data-driven Strategies) initiative can also be implemented to support students in critical thinking and problem-solving development. This seeks to complement NAT readiness by stimulating instructional preparedness, fortifying deficient learners through remedial classes, assimilation of critical thinking activities, and community mobilization. With a combination of peer tutoring, Saturday off-hours enhancement programs, PISA-like assessments, and teacher development workshops guided by evidence-based best practices, this program is designed to improve academic performance comprehensively.

School administrators should prioritize resource allocation to reduce the challenges associated with larger school sizes, such as student-to-teacher ratios. Consider investing more money in professional development, hiring more teachers, and providing more programs to students (especially for subjects like Mathematics, where students currently perform below the expected level). At the risk of reiterating policies that may already be in place, administrators must emphasize encouraging parents to engage in educational activities that benefit their children. Administrators must also emphasize parent engagement in educational activities. Additionally, addressing inequities in access to learning aids through programs supporting economically disadvantaged students, such as scholarship initiatives or resource provisioning, can go a long way in filling the gap of educational assistance received by students.

5.0 Contributions of Authors

AA – Conceived and designed the analysis, collected the data, performed the analysis, wrote the paper, encoded, edited, and conducted data analysis and methodology.
BA – Supervised, monitored, and checked the findings of this work.

6.0 Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

7.0 Conflict of Interests

All authors declare that they have no conflicts of interest.

8.0 Acknowledgment

I want to express my sincere gratitude to our Lord, my family, my research adviser, and all the panel members for their invaluable support and guidance throughout this research.

9.0 References

Abramczyk, A., & Jurkowski, S. (2020). Cooperative learning as an evidence-based teaching strategy: What teachers know, believe, and how they use it. Journal of Education for Teaching, 46(3), 296-308. https://doi.org./10.1080/02607476.2020.1733402

Bañales, J., Marchand, A. D., Skinner, O. D., Anyiwo, N., Rowley, S. J., & Kurtz-Costes, B. (2020). Black adolescents' critical reflection development: Parents' racial socialization and attributions about race achievement gaps. Journal of Research on Adolescence, 30, 403-417. https://doi.org./10.1111/jora.12485

Barker Scott, B. A., & Manning, M. R. (2024). Designing the collaborative organization: A framework for how collaborative work, relationships, and behaviors generate collaborative capacity. The Journal of Applied Behavioral Science, 60(1), 149–193. https://doi.org/10.1177/00218863221106245

Behiga, R. (2022). Issues with National Achievement Test (NAT) in the Philippines. ResearchGate. https://tinyurl.com/msydfnhe

Bellibaş, M. Ş., Gümüş, S., & Liu, Y. (2021). Does school leadership matter for teachers' classroom practice? The influence of instructional leadership and distributed leadership on instructional quality. School Effectiveness and School Improvement, 32(3), 387-412. https://doi.org/10.1080/09243453.2020.1858119

Blömeke, S., Olsen, R.V., & Suhl, U. (2016). Relation of student achievement to the quality of their teachers and instructional quality. In: Nilsen, T., Gustafsson, JE. (eds) Teacher Quality, Instructional Quality and Student Outcomes. IEA Research for Education, Vol 2. Springer, Cham. https://doi.org/10.1007/978-3-319-41252-8_2

Briones, S. K., Dagamac, R. J., David, J., & Landerio, C. A. (2021). Factors affecting the students' scholastic performance: A survey study. Indonesian Journal of Education Research and Technology, 2(2), 97-102. https://doi.org./10.17509/ijert.v2i2.41394/

Broer, M., Bai, Y., & Fonseca, F. (2019). Socioeconomic inequality and educational outcomes: An introduction. In: Socioeconomic Ineqsuality and Educational Outcomes. IEA Research for Education, Vol 5. Springer, Cham. https://doi.org/10.1007/978-3-030-11991-1_1/

Chen, Y. C. (2024). Effects of technology-enhanced language learning on reducing EFL learners' public speaking anxiety. Computer Assisted Language Learning, 37(4), 789-813. https://doi.org/10.1080/09588221.2022.2055083/

Davis-Kean, P. E., Tighe, L. A., & Waters, N. E. (2021). The role of parent educational attainment in parenting and children's development. Current Directions in Psychological Science, 30(2), 186-192. https://doi.org/10.1177/0963721421993116/

Dhanpat, K. (2022). The education district's role in developing principals' instructional leadership in schools (Doctoral dissertation). University of Johannesburg.

Department of Education. (2016). DO 55, S. 2016 – Policy Guidelines on the National Assessment of Student Learning for the K To 12 Basic Education Program. Retrieved from: https://tinyurl.com/3sj2w56t

Fischer, J. P., & Thierry, X. (2022). Boys' math performance, compared to girls', jumps at age 6 (in the ELFE's data at least). British Journal of Developmental Psychology, 40(4), 504-519. https://doi.org./10.1111/bjdp.12423/

Guryan, J., Ludwig, J., Bhatt, M. P., Cook, P. J., Davis, J. M. V., Dodge, K., Farkas, G., Fryer Jr., R. G., Mayer, S., Pollack, H., Steinberg, L., & Stoddard, G. (2023). Not too late: Improving academic outcomes among adolescents. American Economic Review, 113(3), 738–765. https://doi.org/10.1257/aer.20210434

Idris, M., Hussain, S., & Ahmad, N. (2020). Relationship between parents' education and their children's academic achievement. Journal of Arts & Social Sciences, 7(2), 82-92. https://doi.org/10.46662/jass-vol7-iss2-2020(82-92)/

Jackson, R. M., & Andala, H. O. (2022). School management strategies and students' academic performance in twelve years basic education in Rwanda. Journal of Education, 5(1), 84–96. https://doi.org./10.53819/81018102t5053/

Kaukewahulo, S. (2022). The school principal and teachers' roles in improving learners' academic performance at a selected school in the Karas region (Master's thesis). University of Namibia.

Kapengut, D., & Noble, K. G. (2020). Parental language and learning directed to the young child. The Future of Children, 30(2), 71-92. https://doi.org/10.1353/foc.2020.a807752/

Koussihouèdé, O. (2020). Primary school size and learning achievement in Senegal: Testing the quantity–quality trade-off. International Journal of Educational Development, 77, 102225. https://doi.org/10.1016/j.ijedudev.2020.102225/

Leithwood, K. (2021). A review of evidence about equitable school leadership. Education Sciences, 11, 377. https://doi.org/10.3390/educsci11080377/

Li, Z., & Qiu, Z. (2018). How does family background affect children's educational achievement? Evidence from Contemporary China. The Journal of Chinese Sociology, 5(1), 1-21.

https://doi.org/10.1186/s40711-018-0083-8/
Liu, X. (2023). A literature review of Upper Echelons Theory. SHS Web of Conferences, 169. https://doi.org./10.1051/shsconf/202316901067
Malipot, M. (2019). Year-end report DepEd in 2019: The quest for quality education continues. Manila Bulletin. Retrieved from https://tinyurl.com/4ut6j6k7
Meelissen, M., & Luyten, H. (2008). The Dutch gender gap in mathematics: Small for achievement, substantial for beliefs and attitudes. Studies in Educational Evaluation, 34(2), 82–93. https://doi.org/10.1016/j.stueduc.2008.04.004
Munir, J., Daud, S., Faiza, M., Jamal, B., and Iqbal, K. (2023). The impact of socio-economic status on academic achievement. Journal of Social Sciences Review, 3(2), 695-705. https://doi.org./10.54183/jssr.v3i2.308/
Qadach, M., Schechter, C., & Da'as, R. A. (2020). From principals to teachers to students: Exploring an integrative model for predicting students' achievements. Educational Administration Quarterly, 56(5), 736–778. https://doi.org/10.1177/0013161X20907133/
Rahman, S., Munam, A. M., Hossain, A., M. Delwar Hossain, A. S., & Bhuiya, R. A. (2023). Socio-economic factors affecting the academic performance of private university students in Bangladesh: A cross-sectional bivariate and multivariate analysis. Sn Social Sciences, 3(2). https://doi.org./10.1007/s43545-023-00614-w/
Shadiev, R., Yang, M. K., Reynolds, B. L., & Hwang, W. Y. (2022). Improving English as a foreign language–learning performance using mobile devices in unfamiliar environments. Computer Assisted Language Learning, 35(9), 2170–2200. https://doi.org/10.1080/09588221.2020.1868533/
Shahjahan, M., Ahmed, K.R., Al Hadrami, A., Islam, R., Hossain, S., & Khan, S. (2021). Factors influencing poor academic performance among urban university students in Bangladesh. International Journal of Evaluation and Research in Education, 10(4), 1140–1148. https://doi.org/10.11591/ijere.v10i4.21158/
Vadivel, B., Alam, S., Nikpoo, I., & Ajanil, B. (2023). The impact of low socioeconomic background on a child's educational achievements. Education Research International, (1), 6565088. https://doi.org/10.1155/2023/6565088/
Wilder, S. (2023). Effects of parental involvement on academic achievement: A meta-synthesis. In Mapping the Field. Routledge. https://tinyurl.com/32xm2fwc
Yu, Z. (2022). Sustaining student roles, digital literacy, learning achievements, and motivation in online learning environments during the COVID-19 pandemic. Sustainability, 14(8), 4388. https://doi.org/10.3390/su14084388/
Zhang, M., Hu, Y., & Hu, Y. (2022). The influences of socioeconomic status on parental educational expectations: Mediating and moderating effects. Sustainability, 15(16), 12308. https://doi.org/10.3390/su151612308/