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The Level of Academic Performance in General Science Among Senior High School Non-STEM Learners: An Input for Intervention

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https://doi.org/10.5281/zenodo.23758717

ABSTRACT

Science education is essential for developing scientific literacy among learners across academic pathways. However, limited evidence describes General Science performance among Non-STEM learners under the Strengthened Senior High School (SHS) Curriculum. This study determined their academic performance in a pilot-implementing school in the Schools Division of Aklan, Philippines, and examined differences according to track/cluster, sex, academic status, and socioeconomic status as a basis for proposing an intervention. Using a quantitative descriptive-comparative design, 97 learners were selected from a population of 128 through proportionate stratified random sampling. Learner profiles were obtained from School Form 1, while General Science grades were retrieved from School Form 9. Frequency, percentage, mean, standard deviation, and independent-samples t-tests were used at a 0.05 significance level. Results showed an overall mean grade of 87.47 (SD = 4.34), interpreted as Very Satisfactory. Academic-ASSH learners obtained a higher mean (88.64) than TechPro-HT learners (86.69), while female learners (89.45) obtained a higher mean than male learners (85.09). Academic Excellence Awardees obtained a mean of 92.11, compared with 84.74 among Non-Academic Excellence Awardees. Lower-middle-income learners (87.73) and low-income learners (87.25) demonstrated similar performance. Significant differences were found according to track/cluster ($p = .029$), sex ($p < .001$), and academic status ($p < .001$), but not socioeconomic status ($p = .587$). These findings imply that science instruction should address diverse academic pathways and learning needs while promoting equitable participation and achievement. They provide a basis for the proposed ALL FOR JUAN GEN-SCI Program, emphasizing gender-inclusive instruction, contextualized materials, track-responsive activities, and targeted academic support. Systematic implementation and evaluation are recommended to determine its effectiveness and inform future instructional decisions.

Keywords: *Strengthened SHS Curriculum, scientific literacy, descriptive-comparative design, inclusive instruction, contextualized learning, intervention program*

INTRODUCTION

Science education extends beyond knowledge acquisition by developing scientific literacy, which includes the ability to explain phenomena, evaluate scientific investigations, and interpret evidence to make informed decisions (Organization for Economic Co-operation and Development [OECD], 2023a). These competencies are vital in solving issues related to health, environmental sustainability, energy, and technological advancement. Thus, scientific literacy is important for all learners, regardless of their planned academic or career pathways.

In the Philippines, the need to strengthen science learning is evident in the latest Programme for International Student Assessment (PISA) results. Filipino students obtained a mean science score of 373 in PISA 2025, compared with the OECD average of 482 (OECD, 2026). Only 32% of Filipino students attained at least Level 2 proficiency in science, compared with 74% across OECD countries. Although Philippine performance improved from 2022, the results show persisting challenges in developing understanding and applying scientific knowledge. These findings support the need to study science achievement and identify learning needs within specific educational settings to design and develop an appropriate instructional intervention.

In response to the need for more relevant secondary education, the Department of Education (DepEd) introduced the Strengthened Senior High School (SHS) Curriculum to highlight essential competencies and flexible learning pathways. DepEd Memorandum No. 048, s. 2025, started its Grade 11 pilot implementation in School Year 2025–2026 to generate evidence for broader implementation (DepEd, 2025). Examining learners' academic performance during the pilot implementation can offer evidence of learning outcomes, identify learning needs, and guide instructional planning. This is particularly important for Non-STEM learners, who need a relevant and responsive approach that strengthens scientific literacy (Altares, 2024).

Under the Strengthened SHS Curriculum, General Science is a core subject that aims to develop learners' basic scientific competencies across different academic pathways (DepEd, 2025). These objectives align with scientific literacy, which enables learners to apply scientific knowledge, engage in inquiry, evaluate evidence, and respond to real-world issues. Therefore, General Science is particularly relevant to Non-STEM learners.

Existing studies have recognized the significance of learner's characteristics in understanding academic achievement. Pesado et al. (2024) reported a significant relationship between socio-economic status and academic performance among SHS learners from STEM and Humanities and Social Sciences (HUMSS) strands, while Francisco et al. (2024) examined socioeconomic status and parental involvement among special science class students. Philippine PISA research has likewise emphasized the importance of socio-economic background, material resources, and school context to learning outcomes. These studies provide a basis for examining learner characteristics together with academic performance. However, their findings do not directly explain achievement

patterns in General Science among Non-STEM learners under the Strengthened SHS Curriculum.

Although previous studies have examined science achievement and instructional-material development, limited research has focused on General Science among Non-STEM learners under the Strengthened SHS Curriculum. For instance, Pinuela (2025) study on enriched SHS Biology II instructional materials, emphasizing curriculum alignment and contextualization but focused on STEM Biology rather than General Science among Non-STEM learners. The research gap, therefore, lies in the lack of context-specific evidence on Non-STEM learners' General Science performance and its differences across selected learner characteristics in a Strengthened SHS Curriculum pilot-implementing school.

To address the gaps identified, this study aims to determine the level of academic performance in General Science among SHS Non-STEM learners in one pilot school implementing the Strengthened SHS Curriculum in the Schools Division of Aklan. Specifically, it will describe learners' profiles in terms of track or cluster, sex, academic status, and socioeconomic status; examine their academic performance according to these characteristics; and determine whether statistically significant differences exist among the groups.

The findings will serve as the basis for proposing an intervention program or learning enhancement material aligned with the identified learning needs and intended General Science competencies. By linking academic assessment with instructional planning, the study seeks to provide school-level evidence that may help teachers and administrators develop more responsive learning support.

Research Problem

Despite existing research on academic achievement and instructional materials development (Francisco et al., 2024; Pesado et al., 2024; Pinuela, 2025), insufficient studies have examined General Science performance among Non-STEM learners under the Strengthened SHS Curriculum. This gap highlights the need to determine learners' performance and differences across selected characteristics to provide baseline evidence, identify learning needs, and guide appropriate instructional interventions that strengthen scientific literacy.

Assumptions of the Study

1. This study assumes that the academic performance records of Senior High School Non-STEM learners reasonably represent their achievement in General Science during the period covered by the study.
2. This study assumes that the learners' profile information in terms of track or cluster, sex, academic status, and socioeconomic status is accurate and relevant to the analysis of academic performance.

3. The study assumes that examining academic performance across these selected characteristics will help identify possible differences in learning outcomes and areas requiring instructional support.
4. The study assumes that the findings are expected to provide an evidence-based foundation for proposing and developing a responsive intervention program or learning enhancement material aligned with the identified learning needs and General Science competencies.

Objectives of the Study

General Objective

This study aims to determine the level of academic performance in General Science among SHS Non-STEM learners in one pilot school implementing the Strengthened SHS Curriculum in the Schools Division of Aklan, as a basis for proposing an appropriate intervention.

Specific Objectives

Specifically, this study sought to:

1. describe the profile of Senior High School Non-STEM learners in terms of:
   1.1. track or cluster;
   1.2. sex;
   1.3. academic status; and
   1.4. socioeconomic status;
2. determine the level of academic performance of the learners in General Science;
3. determine whether significant differences exist in learners' academic performance in General Science when grouped according to their profile characteristics; and
4. propose an intervention program or learning enhancement material based on the identified learning needs and General Science competencies requiring improvement.

Null hypothesis (H_0): There is no significant difference in General Science academic performance between the groups being compared.

Alternative hypothesis (H_1): There is a significant difference in General Science academic performance between the groups being compared.

Conceptual or Theoretical Framework

Theoretical Framework

This study was anchored in Bronfenbrenner's Ecological Systems Theory (1979) and Bourdieu's Theory of Cultural Capital (1986), which explain how learners' environments and access to educational resources may be associated with academic achievement.

Bronfenbrenner's Ecological Systems Theory highlights the influence of family, school, and social environments on development. Costa et al. (2024), in a systematic

review, identified personal, family, and school-related factors associated with academic achievement. This theory supports examining General Science performance across learners' track-cluster, sex, academic status, and socioeconomic status.

Bourdieu's Theory of Cultural Capital explains how family backgrounds, knowledge, and resources shape educational experiences. The OECD (2023b) reported links between socioeconomic background and educational outcomes. This theory supports examining socioeconomic status in relation to General Science performance.

Conceptual Framework

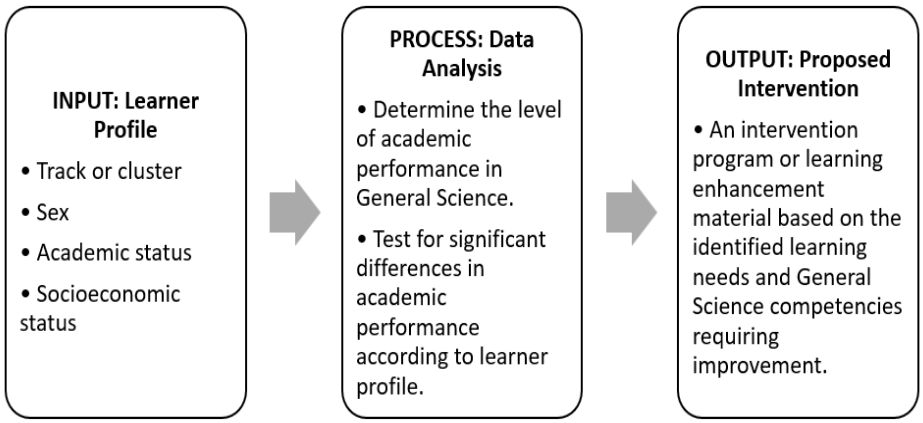

Figure 1: Research Paradigm

The framework presents the relationship between the learners' profile, their academic performance in General Science, and the proposed intervention. The study describes learners according to track or cluster, sex, academic status, and socioeconomic status. It then determined their academic performance and examined whether significant differences existed among the identified groups. The results served as the basis for proposing an intervention responsive to learners' identified needs.

METHODOLOGY

Research Design

This study utilized a quantitative descriptive-comparative design to determine the General Science academic performance among Senior High School Non-STEM learners in one pilot school implementing the Strengthened SHS Curriculum in Aklan. It described learners' profiles and level of academic performance and examined significant differences across selected learner characteristics. This design is appropriate because it analyzes existing quantitative data without manipulating variables and provides a foundation for developing a needs-based intervention.

Research Locale or Study Setting

The study was conducted during School Year 2026-2027 at one pilot school implementing the Strengthened Senior High School Curriculum in the Schools Division of Aklan, Philippines. The school was selected because it began implementing the revised curriculum in the previous school year, providing one year of academic performance records relevant to the study. These data will support the analysis of General Science performance among Non-STEM learners and inform the development of an appropriate intervention.

Participants or Data Sources

The respondents of the study are the SHS Non-STEM learners enrolled during the School Year 2025–2026 in one pilot school implementing the Strengthened SHS Curriculum in the Schools Division of Aklan. From a population of 128 learners, a sample of 97 was determined using Slovin's formula. Proportionate stratified random sampling was employed to allocate respondents across the Technical-Professional (TechPro) Track -Hospitality and Tourism (HT) Cluster and Academic Track- Arts, Social Sciences, and Humanities (ASSH) Cluster according to their population sizes, with learners randomly selected from each group. This technique ensures representation of both groups and supports the analysis of General Science academic performance across selected learner characteristics.

Research Instruments or Materials

The study utilized the Department of Education's School Form 1 (SF1), or School Register, and School Form 9 (SF9), or Learner's Progress Report Card, as data sources. SF1 provided relevant learner profile information, while SF9 provided the learners' General Science grades for School Year 2025–2026. These official school records ensured that the study used documented learner information and academic performance data. The records were reviewed for completeness, accuracy, and relevance before data analysis.

Data Gathering Procedure

Permission to conduct the study was first obtained from the appropriate school authorities, parents, and learners. Then the researcher retrieved relevant learner profile information from DepEd School Form 1 (SF1) and General Science grades from School Form 9 (SF9) for School Year 2025–2026. The records were checked for completeness, accuracy, and consistency before encoding and analysis. Learner identities were kept confidential, and the data were used solely for research purposes. Access to the records and data handling followed standard school policies and ethical requirements.

Data Analysis

The data were analyzed using statistical software. Frequency and percentage distributions described learners' profiles, while the mean and standard deviation summarized General Science grades. An Independent-Samples T-Test was used to examine the differences in academic performance according to sex, socioeconomic status, academic status, and track-cluster. Statistical significance was set at 0.05. These techniques aligned with the descriptive-comparative research design by identifying performance levels and differences across learner groups, providing a basis for proposing an appropriate intervention.

Ethical Considerations

The study observed ethical principles by securing permission from the appropriate school authorities before accessing learner records. Learners' information was treated confidentially, anonymized during analysis, and used solely for research purposes. Data were securely handled and accessed only for authorized research activities. Applicable data privacy requirements and institutional policies were observed. Ethical clearance and informed consent or parental consent was secured in accordance with institutional and ethical requirements.

RESULTS AND DISCUSSION

Profile of Senior High School Non-STEM Learners

Table 1.
Learners Profile According to Track-Cluster, Sex, Academic Status, and Socioeconomic Status

Profile variable	Category	Frequency	Percentage
Track-Cluster	TechPro-HT	58	59.79%
	Academic-ASSH	39	40.21%
Sex	Male	44	45.36%
	Female	53	54.64%
Academic Status	Academic Excellence Awardee	36	37.11%
	Non-Academic Excellence Awardee	61	62.89%
Socioeconomic	Low Income	52	53.61%
Status	Lower Middle Income	45	46.39%
Total		**97**	**100%**

Note: *Socioeconomic Status: Less Than 10,000php=low income; 10,000-50,000php= Lower-middle income; 50,001-100,000php=Upper middle class; 100,001 and more=high income; Academic Status: Academic Excellence Awardee=Grade 90-100; Non-Academic Excellence Awardee= Grade of 75-89.*

The profile of the 97 SHS Non-STEM learners was described in terms of track-cluster, sex, academic status, and socioeconomic status. In terms of track-cluster, most respondents belonged to TechPro-HT (59.79%), while 40.21% were from Academic-ASSH. This distribution provides a basis for examining possible differences in General Science performance between the two clusters. Regarding sex, females comprised 54.64% of the respondents, compared with 45.36% males, indicating a relatively balanced distribution with slightly more female learners. For academic status, 62.89% were Non-Academic Excellence Awardees, while 37.11% were Academic Excellence Awardees. In terms of socioeconomic status, 53.61% belonged to the low-income category, while 46.39% were classified as lower-middle-income. The groups were relatively similar in size, providing a basis for examining potential differences in General Science performance according to household income.

Level of Academic Performance in General Science of SHS Non-STEM Learners

Table 2.
SHS Non-STEM Learners Level of Academic Performance in General Science

Profile variable	Category	n	Mean	SD	Level of Performance
Track-Cluster	TechPro-HT	58	86.69	4.15	Very Satisfactory
	Academic-ASSH	39	88.64	4.40	Very Satisfactory
Sex	Male	44	85.09	3.65	Very Satisfactory
	Female	53	89.45	3.87	Very Satisfactory
Academic Status	Academic Excellence Awardee	36	92.11	2.45	Outstanding
	Non-Academic Excellence Awardee	61	84.74	2.48	Satisfactory
Socioeconomic Status	Low Income	52	87.25	4.58	Very Satisfactory
	Lower Middle Income	45	87.73	4.08	Very Satisfactory
Total		**97**	**87.47**	**4.34**	Very Satisfactory

Note: *Outstanding (90–100), Very Satisfactory (85–89), Satisfactory (80–84), and Fairly Satisfactory (75–79)*.

Table 2 presents the General Science academic performance of 97 SHS Non-STEM learners, based on their grades recorded in DepEd School Form 9. Overall, learners obtained a mean grade of 87.47 (SD = 4.34), interpreted as Very Satisfactory, showing generally favorable achievement despite variations in individual and group performance. Costa et al. (2024) identified personal, academic, family, peer**,** and school-related factors linked with academic achievement, while the OECD (2023c) highlighted equitable learning

opportunities for students from diverse backgrounds. These findings emphasize the importance of examining performance across learner characteristics to identify groups that may require additional instructional support and to guide the development of interventions that are responsive to Non-STEM learners' needs in General Science.

Track-Cluster- In terms of track-cluster, Academic-ASSH learners obtained a higher mean grade (M = 88.64, SD = 4.40) than TechPro-HT learners (M = 86.69, SD = 4.15), although both groups achieved a Very Satisfactory level. This finding aligns with Baron (2022), who reported differences in academic performance across selected senior high school strands. Similarly, Almerino et al. (2020) highlighted differences in academic assessment outcomes among Philippine SHS learners. These findings suggest that learners' academic performance in General Science may vary across curriculum pathways. Therefore, instructional materials should consider the distinct academic preparation and learning experiences of Academic-ASSH and TechPro-HT learners to address their specific learning needs and competency gaps.

Sex- Regarding sex, female learners obtained a higher mean grade (M = 89.45, SD = 3.87) than male learners (M = 85.09, SD = 3.65), although both groups achieved a Very Satisfactory level. This finding is consistent with Philippine studies by Santos et al. (2022), Babaylo (2021), and Dela Cruz (2024), which reported higher science achievement among female learners. The higher mean among female learners suggests that male learners may need closer assessment to identify possible learning difficulties contributing to the observed performance gap. However, this difference should not be attributed to sex alone. Science instruction should provide targeted learning support, strengthen learners' confidence and engagement, and address competency gaps to improve achievement among both groups.

Academic Status- In terms of academic status, Academic Excellence Awardees obtained an Outstanding mean grade (M = 92.11, SD = 2.45), whereas Non-Academic Excellence Awardees obtained a Satisfactory mean grade (M = 84.74, SD = 2.48). This substantial difference highlights variations in General Science achievement between the two groups. Consistent with this finding, Canillo et al. (2024) emphasized the importance of identifying learning gaps among senior high school learners, while Jaugan et al. (2026) identified subject grades and previous school background as predictors of academic achievement. These findings suggest that learners with lower academic performance may benefit from targeted remediation and competency-based instructional materials.

Socioeconomic Status- Learners from both socioeconomic groups achieved a Very Satisfactory level in General Science, with lower-middle-income learners obtaining a slightly higher mean grade (M = 87.73, SD = 4.08) than low-income learners (M = 87.25, SD = 4.58). This pattern suggests that learners in both groups demonstrated similar academic performance. In the Philippine context, Pesado et al. (2024) examined socioeconomic status in relation to senior high school academic performance, while Budiongan et al. (2024) considered socioeconomic status alongside parental expectations and student motivation. These studies highlight the relevance of examining learners' socioeconomic circumstances alongside other factors that may shape achievement.

Test of Significant Difference in General Science Academic Performance According to the Respondents' Profiles

Table 3 below presents the significant differences in General Science academic performance among Non-STEM learners according to track-cluster, sex, academic status, and socioeconomic status. The findings show that track-cluster, sex, and academic status were significantly associated with differences in learners' General Science academic performance, whereas socioeconomic status revealed no statistically significant difference. These results suggest that learners' academic performance is not uniform across all profile groups and that instructional planning should consider learners' academic backgrounds and demonstrated learning needs.

Table 3.
Significant Differences in General Science Academic Performance According to Learner's Profile

Profile variable	*t*	*df*	*p*	Decision	Conclusion
Track-Cluster	2.215	95	.029	Reject H_o	Significant
Sex	5.672	95	< .001	Reject H_o	Significant
Academic Status	14.231	95	< .001	Reject H_o	Significant
Socioeconomic Status	−0.545	95	.587	Fail to Reject H_o	Not Significant

Track-cluster- In terms of track-cluster, General Science academic performance differed significantly between learners (p = .029) where Academic-ASSH obtained a mean grade of (M = 88.64, SD = 4.40) than TechPro-HT learners (M = 86.69, SD = 4.15). This finding aligns with Punongbayan and Arapoc (2025) and Gagto (2026), who reported variations in academic performance according to students' senior high school strands. These results suggest that differences in learners' track clusters are relevant to General Science achievement. Thus, instructional materials should incorporate diagnostic assessments, contextualized examples, and scaffolded activities to address the specific competency gaps of both track-clusters.

Sex- In terms of sex, the results revealed a statistically significant difference in General Science performance according to sex (p < .001), with female learners (M = 89.45, SD = 3.87) obtaining higher grades than male learners (M = 85.09, SD = 3.65). This finding is consistent with Dela Cruz (2024), who reported higher Science achievement among female learners, while Gicana and Daradar (2023) highlighted the relevance of gender stereotypes and science self-concept to academic performance. These Philippine studies provide

context for the observed performance gap, underscoring the need for inclusive General Science instructional materials that strengthen scientific confidence, encourage active participation, and address learners' identified competency gaps without attributing differences to sex alone.

Academic Status- A statistically significant difference in General Science academic performance was found according to academic status ($p < .001$), with Academic Excellence Awardees ($M = 92.11$, $SD = 2.45$) outperforming Non-Academic Excellence Awardees ($M = 84.74$, $SD = 2.48$). This finding highlights the need to address learners' competency gaps. Canillo et al. (2024) identified learning gaps among Philippine senior high school learners, while Eroy et al. (2026) and Altares (2024) reported improved science learning outcomes through targeted instructional materials. These findings support developing General Science materials with clear explanations, guided activities, and formative assessments to strengthen learners' mastery of science competencies.

Socioeconomic status- The results showed no statistically significant difference in General Science academic performance according to socioeconomic status ($p = .587$), despite slightly higher grades among lower-middle-income learners ($M = 87.73$, $SD = 4.08$) than low-income learners ($M = 87.25$, $SD = 4.58$). This finding contrasts with Pesado et al. (2024), who reported a significant relationship between socioeconomic status and academic performance among Philippine senior high school learners, and Yigiter (2025), who found associations between socioeconomic status and achievement across 54 countries. The difference may reflect how socioeconomic status was measured, as the present study considered only household-income categories. Thus, the findings support developing accessible General Science instructional materials using low-cost activities and locally available resources to accommodate learners from diverse financial backgrounds.

Proposed Intervention Program or Learning Enhancement Material

The proposed ALL FOR JUAN GEN-SCI (Gender-Inclusive, Contextualized, and Track-Responsive Science Learning Advancement Program) aims to help Senior High School Non-STEM learners improve their academic performance in General Science by making learning more meaningful, inclusive, and responsive to their needs. Based on the study's findings, the program identifies that learners have different academic experiences and may need different forms of support.

To address learners' needs, the program will use science activities connected to everyday life and local community experiences. Learning tasks will consider the contexts of both TechPro-HT and Academic-ASSH learners while promoting equal participation regardless of sex or socioeconomic background. Through diagnostic assessments, teachers can identify least-mastered competencies and provide appropriate learning materials, guided activities, remediation, or enrichment. Low-cost resources and collaborative tasks will also help ensure that learners have opportunities to participate regardless of their access to learning materials.

The program will involve an initial assessment, targeted learning activities, regular progress checks, and a posttest to determine whether learners' performance improves after implementation. ALL FOR JUAN GEN-SCI is designed to ensure that every Non-STEM learner feels included, supported, and capable of learning science. Its effectiveness will be assessed through the results of its actual implementation, allowing teachers to identify which strategies work well and which areas need further improvement.

General Discussion

The findings of the study collectively address the primary objective of determining the level of General Science academic performance among Senior High School Non-STEM learners in one pilot school implementing the Strengthened Senior High School Curriculum in the Schools Division of Aklan. Among the 97 respondents, most belonged to the TechPro-HT track-cluster, were female, were classified as Non-Academic Excellence Awardees, and came from low-income households. Overall, learners obtained a mean grade of 87.47 (SD = 4.34), interpreted as Very Satisfactory. Although this result shows generally favorable performance, the group means reveal differences that merit attention, mainly among learners with lower academic achievement.

Performance differed across the selected learner profiles. Academic-ASSH learners obtained a higher mean grade than TechPro-HT learners, while female learners had a higher mean than male learners. Academic Excellence Awardees also obtained higher grades than Non-Academic Excellence Awardees. The statistical tests identified significant differences between track-cluster, sex, and academic status, but not socioeconomic status. These results suggest that learners' performance patterns are not uniform across all groups. However, the findings describe differences and do not establish that these characteristics directly cause variations in achievement.

The findings contribute to the limited context-specific evidence on General Science academic performance among Non-STEM learners under the Strengthened SHS Curriculum. While previous Philippine studies have examined socioeconomic status, academic achievement, and instructional-material development, this study provides school-level evidence across four learner characteristics within a pilot-implementing school. The results also offer a practical application of Bronfenbrenner's Ecological Systems Theory and Bourdieu's Theory of Cultural Capital by emphasizing the relevance of learners' educational and socioeconomic contexts when planning science instruction. However, the absence of a statistically significant difference by socioeconomic group in this sample suggests that household income alone may not adequately explain the observed variation in General Science grades.

Practically, the findings provide a basis for the proposed ALL FOR JUAN GEN-SCI Program (Gender-Inclusive, Contextualized, and Track-Responsive Science Learning

Advancement Program). The program will support all Non-STEM learners through contextualized learning activities, accessible instructional materials, diagnostic assessments, guided remediation, and enrichment tasks. Activities will consider the learning contexts of TechPro-HT and Academic-ASSH learners, promote equitable participation regardless of sex, and use low-cost resources to accommodate learners with different financial status. Rather than assigning support solely according to learner profiles, teachers can use diagnostic results to identify specific competencies requiring improvement.

Several limitations should be considered when interpreting the findings. The study involved 97 learners from one pilot-implementing school in Aklan; therefore, the results may not represent all Non-STEM learners in the division or other schools implementing the strengthened curriculum. The analysis relied on existing school records and a limited set of learner characteristics, which did not capture other possible influences such as attendance, motivation, instructional practices, or access to learning resources. Future research could include multiple schools, examine additional learner and school factors, and investigate which instructional strategies best address identified competency gaps. Implementing and evaluating ALL FOR JUAN GEN-SCI through pretest–posttest measures and, where feasible, a comparison group would also help determine its effectiveness.

Overall, the study establishes that a generally Very Satisfactory level of General Science performance can coexist with meaningful differences among learner groups. Its main contribution is the use of these findings as a basis for more responsive, inclusive, and evidence-informed science instruction for Non-STEM learners. The proposed intervention translates the descriptive and comparative results into a practical plan, while its actual impact remains to be established through future implementation and evaluation.

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