ACADEMIA│Letters

Academic Performance in General Mathematics of Grade 11 Students: A Brief Report

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Abstract

This brief report shows the academic performance in General Mathematics which Grade 11 students take during their first semester. Results show that the overall academic performance of Grade 11 students in General Mathematics is Mean=86.49, SD=6.53. This brief report also reveals the academic performance and descriptives of Grade 11 students when grouped according to Sex, Strand, and School Year attended. It also shows that there exists significant differences in the academic performance of Grade 11 students when grouped according to Sex, Strand, and School Year attended.

Keywords: General mathematics, Senior high school, Grade 11

Introduction

Academic performance, according to Dinglasan & Patena (2013), relates to how students handle their studies and how they cope with or complete the tasks assigned to them by their lecturers. The ability to study and remember facts, as well as the ability to transmit acquired knowledge vocally or on paper, are typically assessed through grades. One of the school's key goals is to improve academic achievement as indicated by examination results. Schools are

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founded with the goal of transmitting knowledge and skills to people who attend them, with the goal of improving students' academic performance at the forefront.

The performance of students is crucial in producing high-quality graduates who will serve as outstanding leaders and personnel for the country, and thus be accountable for its economic and social progress (Ali, et al., 2009). Because educational services result in the transformation of learners' knowledge, life skills, and behavior, they are typically intangible and difficult to assess (Tsinidou, Gerogiannis, & Fitsilis, 2010). Students receive assistance and support from school personnel, family members, and the community in order to improve their academic performance. This social aid is critical for pupils to achieve their academic achievement goals (Goddard, 2003). Apart from the social framework, parents' involvement in their children's education improves their chances of academic success.

The mathematical achievements of students in high school have an impact on their college performance and future professions. Having a strong mathematical foundation allows students to develop insightful viewpoints and expand their employment prospects. Educators and policy makers have often underlined the importance of mathematical learning (Wilkins & Ma, 2002). Teachers and parents have paid close attention to pupils' mathematics ability and improvement over the years. Law makers have also urged for an improvement in students' overall performance as well as the bridging of achievement discrepancies. Teachers and parents who understand the elements that influence their children' mathematics achievement and improvement will be able to assist them in making significant academic progress.

The purpose of this paper is to present the academic performance of Grade 11 students in a Mathematics subject, specifically, in General Mathematics.

Methodology

Descriptive research design using secondary data was employed in this brief report. Descriptive research design is a study designed to depict the participants in an accurate way. More simply put, descriptive research is all about describing people who take part in the study and it can be done using observational, case study, or survey (Kowalczyk, 2015).

The participants of the study were the Senior High School students of a particular integrated school of a private university in Negros Occidental, Philippines. The participants were Grade 11 students from various school years. They were enrolled in different tracks and strands.

The data were all taken from secondary data which is gathered from faculty of the Mathematics Department. The author reached out and secured the permission of the faculty of the institution and gathered enough number of secondary data to be used in the study.

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Results and Discussion

A total of 877 student data were taken from the faculty of the institution. The distribution of strand, sex, and school year is presented in Table 1.

Frequencies of Strand

Levels	Counts	% of Total	Cumulative %
TVL	24	2.7%	2.7%
ABM	299	34.1%	36.8%
STEM	392	44.7%	81.5%
HUMSS	162	18.5%	100.0%

Frequencies of Sex

Levels	Counts	% of Total	Cumulative %
F	497	56.7%	56.7%
M	380	43.3%	100.0%

Frequencies of SY

Levels	Counts	% of Total	Cumulative %
2017-2018	113	12.9%	12.9%
2018-2019	196	22.3%	35.2%
2019-2020	568	64.8%	100.0%

Table 1. Profile of the participants

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The overall mean academic performance of Grade 11 students is 86.49 in General Mathematics with an SD of 6.53. This is described as Very Satisfactory as taken from the school's student handbook.

Table 2 reveals the mean academic performance of Grade 11 students when grouped according to strand. Table 2 shows that ABM students got the highest mean academic performance with Mean=88.30, SD=6.00, this is described as Very Satisfactory as taken from the school's student handbook. while the TVL students got the lowest with Mean=79.25, SD=4.30, This is described as Fairly Satisfactory as taken from the school's student handbook.

Descriptives

	Strand	N	Mean	SD
Acad. Performance	TVL	24	79.250	4.296
	ABM	299	88.304	5.999
	STEM	392	86.352	6.715
	HUMSS	162	84.531	5.966

Table 2. Academic Performance of the participants when grouped according to Strand

Table 3 showcases the mean academic performance of Grade 11 students when grouped according to sex. Table 3 reveals that female students got a higher mean academic performance with Mean=87.43, SD=6.09, this is described as Very Satisfactory as taken from the school's student handbook. While the male students got a mean academic performance of 85.26, with an SD of 6.88, also described as Very Satisfactory.

Descriptives

	Sex	N	Mean	SD
Acad. Performance	F	497	87.427	6.094
	M	380	85.258	6.882

Table 3. Academic Performance of the participants when grouped according to Sex

When the Grade 11 students were grouped according to school year, Table 4 shows that students from school year 2018-2019 got the highest mean academic performance with Mean=89.37, SD=6.24, this is described as Very Satisfactory as taken from the school's student handbook. While students from school year 2017-2018 got the lowest with Mean=84.33, SD=6.64, this is described as Satisfactory as taken from the school's student handbook.

Descriptives

	SY	N	Mean	SD
Acad. Performance	2017-2018	113	84.327	6.643
	2018-2019	196	89.367	6.236
	2019-2020	568	85.923	6.303

Table 4. Academic Performance of the participants when grouped according to School Year attended

For the inferential analysis, there is a significant difference in the academic performance of Grade 11 students when grouped according to Sex with $p<0.00001$ using Independent Samples t-test with 0.05 level of significance. Hence, female students obtained a significantly higher academic performance in General Mathematics compared to male students.

Independent Samples T-Test

		Statistic	df	p
Acad. Performance	Student's t	4.936[a]	875.000	<.00001

Table 5. Significant Difference in the Academic Performance when grouped according to Sex

There is also a significant difference in the academic performance of Grade 11 students when grouped according to Strand with $p<0.00001$ using One-Way Analysis of Variance (ANOVA) with 0.05 level of significance. Since, there is a significant difference using One-Way ANOVA, there is a need to perform a Post-Hoc test. The Tukey Honestly Significant Difference (HSD) Test was used, which shows that there are significant differences when comparing all the strands in a pairwise manner, that is, there is a significant difference when

you compare students from TVL and ABM, TVL and STEM, TVL and HUMSS, ABM and STEM, ABM and HUMSS, and STEM and HUMSS. This result is in conjunction to the study of Alova (2019), that there is a significant difference between the Grade 11 students' academic performance in Mathematics and their chosen strands.

One-Way ANOVA (Fisher's)

	F	df1	df2	p
Acad. Performance	24.213	3	873	<.00001

Table 6. Significant Difference in the Academic Performance when grouped according to Strand

Tukey Post-Hoc Test – Acad. Performance

		TVL	ABM	STEM	HUMSS
TVL	Mean difference	—	−9.054 ***	−7.102 ***	−5.281 ***
	p-value	—	<.00001	<.00001	0.00076
ABM	Mean difference		—	1.952 ***	3.773 ***
	p-value		—	0.00033	<.00001
STEM	Mean difference			—	1.821 *
	p-value			—	0.01070
HUMSS	Mean difference				—
	p-value				—

Note. * p < .05, ** p < .01, *** p < .001

Table 7. Post-Hoc Test of Significant Difference in Academic Performance when grouped according to Sex

Finally, there is a significant difference in the academic performance of Grade 11 students when grouped according to School Year attended to with p<0.00001 using One-Way Analysis of Variance (ANOVA) with 0.05 level of significance. The Tukey HSD Test was implement here, which shows that there are significant differences when comparing all the school years

attended to in a pairwise manner, that is, there is a significant difference when you compare students from School Year 2017-2018 and 2018-2019, School Year 2017-2019 and 2019-2020, and School Year 2018-2019 and 2019-2020.

One-Way ANOVA (Fisher's)

	F	df1	df2	p
Acad. Performance	29.102	2	874	<.00001

Table 8. Significant Difference in the Academic Performance when grouped according to School Year attended

Tukey Post-Hoc Test – Acad. Performance

		2017-2018	2018-2019	2019-2020
2017-2018	Mean difference	—	−5.040 ***	−1.595 *
	p-value	—	<.00001	0.03891
2018-2019	Mean difference		—	3.445 ***
	p-value		—	<.00001
2019-2020	Mean difference			—
	p-value			—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 9. Post-Hoc Test of Significant Difference in Academic Performance when grouped according to School Year attended

Recommendations

Based on the results and discussions, overall the interpretation of the mean academic performance of Grade 11 students is Very Satisfactory. One recommendation is to challenge the teachers, the faculty of the Senior High School of the institution, to improve the overall

mean academic performance of the students from very satisfactory to Outstanding, by offering review sessions, remedial classes, and encouraging the students the peer tutoring approach, among others.

Finally, the Mathematics faculty could arrange a webinar showcasing the importance of Mathematics in their future career and college courses. So that they could be motivated to learn Mathematics and improve their academic performance in Mathematics.

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