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CORRELATION BETWEEN MATHEMATICS GRADE AND GENERAL RATING IN MSU-SYSTEM ADMISSION AND SCHOLARSHIP EXAMINATION

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I. INTRODUCTION

Entrance examination in colleges and universities is designed to measure the aptitude of the students especially in English and mathematics. Analysis of the students' performance in the System Admission and Scholarship Examination (SASE) of the Mindanao State University – System for instance is a good reference for improving the teaching of mathematics among the high school students who mostly lack preparation and readiness in taking an entrance examination.

This paper views the comprehensive and coordinated approach between the senior high school officials and the tertiary school officials as necessary in order to prepare thoroughly the students for any college entrance examination. The objective of this study is to focus on evaluation, comparison, academic performance, competence, aptitude level of the students in the two laboratory high schools of Mindanao State University-Sulu and Sulu State College, specifically in the area of mathematics. Comparison covers the data and weighted average on mathematics as well as the general (over-all) rating based on age, gender, and occupation of parents.

This paper is based on a “documentary analysis technique”, a type of descriptive method of research that involves gathering information by examining records and documents. This method is often referred to as “content analysis.” The respondents of this study were the graduates of the two laboratory high schools.

II. PROFILE OF THE RESPONDENTS AND OCCUPATION OF PARENTS

Table 1 shows the data about the profile of the respondents. In this study the age of the respondents was categorized into three groups. The first group were 36 respondents or 25.7 % of the total who were below 16 years old. The second group were 53 respondents or 37.9 % who were exactly 16 years old when this study was conducted. The third group were 51 respondents or 36.4% of the total who were already over 16 years old.

In terms of gender, almost two-thirds of the respondents, i.e. 92 were female, while a little over one-third, i.e. 48 of the respondents were male.

Table 1. Profile of the Respondents

AGE	FREQUENCY	PERCENT
Below 16 years old	36	25.7
Exactly 16 years old	53	37.9
Over 16 years old	51	36.4
Total	140	100.0
GENDER	FREQUENCY	PERCENT
Male	48	34.3

Female	92	65.7
Total	140	
OCCUPATION OF PARENTS	FREQUENCY	PERCENT
Jobless	21	15.0
Farmer/Fisherman	42	30.0
Carpenter/Const'n Worker	5	3.6
Driver	5	3.6
Teacher	6	4.3
Policeman/Military	12	8.6
Government Employee	20	14.3
Businessman	29	20.7
Total	140	100.0

Based on the occupation of their parents, the respondents were grouped into 8. In the first group were 21 or 15% of the respondents whose parents were jobless. The second group was the most in number, i.e. 42 or 30% of the respondents whose parents were either farmers or fishermen. There were 5 respondents whose fathers were either carpenter or construction workers. The same number of respondents were children of drivers of passenger jeeps. Six (6) of the respondents were sons or daughters of teachers; 12 were children of policemen or soldiers; 20 were children of government employees; and 29 were sons or daughters of vendors, small and businessmen.

III. LEVEL OF PERFORMANCE OF THE RESPONDENTS IN MATHEMATICS IV

Table 2 shows the data taken from the office of the principal/registrar of the two laboratory high schools in Jolo. None of them got failing grade in Mathematics IV.

Of the 140 respondents, 25 or 17.9% got grades below 80, i.e. from 75 to 78; 92 or 65.7% were from 80 to 89, and 23 or 16.4% were from 90 – 96. The mean or average grade is 84.24.

Table 2. Math IV Performance of the Respondents

Grade in Math IV	Description	Frequency	Percent
75	Average	2	1.4
76	Average	12	8.6
77	Average	6	4.3
78	Average	5	3.6
80	Average	6	4.3
81	Average	10	7.1
82	Average	10	7.1
83	Average	8	5.7
84	Average	16	11.4
85	Above Average	9	6.4
86	Above Average	8	5.7
87	Above Average	7	5.0
88	Above Average	8	5.7
89	Above Average	10	7.1
90	Above Average	9	6.4
91	Above Average	4	2.9
92	Above Average	5	3.6
93	Above Average	2	1.4
94	Above Average	1	0.7
95	Excellent	1	0.7
96	Excellent	1	0.7
Total		140	100.0
Mean= 84.24	Average		

If the high school grades were to be given descriptive equivalent following one of the Likert scales, then the following might be applied: 65 – 72 = Failure; 73 – 79 Below Average; 80 – 86 = Average; 87 – 93 = Above Average; and 94 – 100 Excellent.

By applying the same descriptive rating in the present study, there are 25 respondents who got below average; 67 respondents got average; 45 respondents got above average; and only 3 excellent grades. Their mean grade is average.

IV. MATHEMATICS SCORES OF THE RESPONDENTS IN MSU-SASE

Table 3a shows the Mathematics score of the respondents in the MSU SASE. There were 40 items of math in the MSU SASE. The highest score obtained by the respondents was 31 and lowest score was 5. The mean score of 17.17 was way below the 50% mark or 20 correct.

If 20 were to be the basis or lowest passing mark, then only 50 out of 140 respondents passed in Math of MSU-SASE. This is equivalent to 35.71% or a little over one-third of the total.

Among the number of respondents with their corresponding scores are the following: 7 respondents scored 20; 4 got 21; 11 got 22; 5 got 23; 3 got 24; 4 got 25; 2 got 26; 4 got 27; 5 got 28; 2 got 29; 1 got 30; and 2 got the highest score of 31.

By giving a descriptive equivalent to the obtained scores, another Likert scale may be used, as follows: 0 – 8 = Failure; 9 – 16 = Below Average; 17 – 24 = Average; 25 – 32 = Above Average; and 33 – 40 = Excellent.

Table 3a. Performance of the Respondents in Mathematics of MSU-SASE

MSU- SASE Math Result			
Score	Description	Frequency	Percent
5	Failure	2	1.4
6	Failure	2	1.4
7	Failure	1	0.7
8	Failure	7	5.0
9	Below Average	6	4.3
10	Below Average	9	6.4
11	Below Average	4	2.9
12	Below Average	4	2.9
13	Below Average	7	5.0
14	Below Average	7	5.0
15	Below Average	11	7.9
16	Below Average	8	5.7
17	Average	6	4.3
18	Average	7	5.0
19	Average	9	6.4
20	Average	7	5.0
21	Average	4	2.9
22	Average	11	7.9
23	Average	5	3.6
24	Average	3	2.1
25	Above Average	4	2.9
26	Above Average	2	1.4
27	Above Average	4	2.9
28	Above Average	5	3.6
29	Above Average	2	1.4
30	Above Average	1	0.7
31	Above Average	2	1.4
TOTAL		140	100.0
Total no. of Items = 40			
Mean = 17.17 = Average		Std Deviation = 6.309	

Based on the above scale, there were 12 respondents who got failing grade; 56 respondents got below average; 52 got average; 20 got above average. None of the respondents got excellent grade. The mean grade is average.

V. GENERAL RATING OF THE RESPONDENTS IN MSU-SASE

Table 3b shows the general performance of the respondents in the MSU-SASE. The 2004 MSU SASE has 180 items. The highest score obtained by the respondents was only 106 while the lowest score was 36. If 50 % of the items or 90 correct were made as basis or lowest passing mark, then only 5 out of 140 respondents passed. This means rate is only 3.7%.

Table 3b. General Performance of the respondents in MSU-SASE

MSU-SASE General Result			
Score	Description	Frequency	Percent
36	Below Average	1	0.7
39	Below Average	1	0.7
40	Below Average	1	0.7
41	Below Average	1	0.7
42	Below Average	4	2.9
43	Below Average	2	1.4
44	Below Average	2	1.4
45	Below Average	2	1.4
46	Below Average	1	0.7
47	Below Average	1	0.7
48	Below Average	3	2.1
49	Below Average	1	0.7
50	Below Average	3	2.1
51	Below Average	4	2.9
52	Below Average	6	4.3
54	Below Average	2	1.4
55	Below Average	4	2.9
56	Below Average	3	2.1
57	Below Average	3	2.1
58	Below Average	1	0.7
59	Below Average	5	3.6
60	Below Average	2	1.4
61	Below Average	3	2.1
62	Below Average	3	2.1
63	Below Average	1	0.7
64	Below Average	3	2.1
65	Below Average	1	0.7
66	Below Average	1	0.7
67	Below Average	4	2.9
68	Below Average	3	2.1
69	Below Average	2	1.4
70	Below Average	6	4.3
71	Below Average	6	4.3
72	Average	9	6.4
73	Average	4	2.9
74	Average	3	2.1
75	Average	4	2.9
76	Average	5	3.6
77	Average	2	1.4
78	Average	2	1.4
79	Average	1	0.7
80	Average	2	1.4
81	Average	1	0.7
82	Average	2	1.4
83	Average	3	2.1
84	Average	2	1.4
85	Average	1	0.7

86	Average	3	2.1
87	Average	1	0.7
88	Average	3	2.1
89	Average	1	0.7
91	Average	1	0.7
92	Average	1	0.7
95	Average	1	0.7
98	Average	1	0.7
106	Average	1	0.7
Total	Average	140	100.0
Total No. of Items = 180			
Mean = 65.78 = Below Average		Standard Deviation=14.382	

If the scores in the MSU-SASE were also given descriptive equivalent, using a Likert scale, then the following may be applied: 0 -35 = Failure; 36-71 = Below Average; 72-107 = Average; 108-144 = Above Average; and 145-180 = Excellent.

By using the above description in the present study, the result is as follows: none of the respondents got failing grade; 86 got below average and 54 got average; none got above average and excellent grades. The mean grade is below average.

VI. SIGNIFICANT CORRELATION BETWEEN THE RESPONDENTS' PROFILE AND THEIR MATH IV GRADE, SASE-MATHEMATICS, AND OVER-ALL SASE RESULT

Table 4a shows the different correlations between the respondents' profile in terms of age, gender, and parent's occupation with Math IV grade, SASE-Math rating, and over-all SASE result.

It should be noted that instead the Pearson Product Moment correlation, a nonparametric Spearman's **rho** correlation was used because the standard deviations of some variable differ by more than 2. Please see Appendix F on page 55 for the SPSS output of this item.

As can be seen in Table 5a, there is significant correlation between the age of the respondents and their Math IV grades. This is evidenced by the correlation coefficient (rho) of -.270 with sig. (2-tailed) value of .001. The last value is much less than .050; hence rho falls into the rejection region. So, the null hypothesis: "there is no significant correlation between the respondents' age and their Math IV grade" must be rejected. In other words, the age of respondents determines their grades in Math IV. Since rho is negative (-.027) then it further means either the older the respondent the lower is their grade in Math IV, or the other way around is true.

Table 4a. Correlation between the Respondent's Age and Math IV Grade, SASE-Math, and SASE General Rating

AGE	MATH IV	SASE-Math	SASE-Gen. Rating
Spearman's rho			
Correlation Coefficient	-.270*	-0.44	-.092
Sig. (2- tailed)	.001	.606	.280

N	140	140	140
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*Correlation is significant at the .05 level (2-tailed).

But the correlations between the respondents' age and their SASE-MATH rating as well as SASE general rating were not significant since both their sig. (2-tailed) values are greater than .050 levels. This indicates that their values do not fall into the rejection regions, hence the null hypothesis: "There is no significant correlation between the respondents' age and their SASE-Math and SASE general rating" cannot be rejected. This means age of the respondents has nothing to do with their SASE Math and general ratings.

Gender is not significantly correlated with Math IV grade, SASE-Math, and SASE-general rating as shown in Table 4b. This is confirmed by their sig. (2-tailed) values of .406, .986 and .588 respectively. All of these values are greater than the .050 levels which indicate that their rho values do not fall into the rejection region. So, the null hypothesis "There is no significant correlation between the respondents' gender and their Math IV grade, SASE-Math and SASE general rating" cannot be rejected. This means that the gender of the respondents has nothing to do with their Math IV grade, SASE-Math and SASE general rating.

Table 4b. Correlation Between the Respondent's Age and Math IV Grade, SASE-Math, and over-all SASE-Result

AGE	MATH IV	SASE-Math	SASE-Gen. Rating
Spearman's rho			
Correlation Coefficient	-.071	-.001	.046
Sig. (2- tailed)	.406	.986	.588
N	140	140	140

*Correlation is significant at the .05 level (2-tailed)

As for occupation of parents, the Table 4c shows that it is significantly correlated with SASE math rating and SASE general rating. This is supported by the rho values of .363 and .250 which are significant at .000 and .002 respectively, both of which are less than the .050 significant level. Hence, the rho values fall into the rejection region, so the null hypothesis: "there is no significant correlation between the respondents' occupation of parents and their SASE math and SASE general rating" cannot be rejected. It must be accepted. It is also clear that both rho values are positive. This means that the better is the parent's occupation; the higher is the respondents' SASE math and SASE general Ratings.

But occupation of parents is not significantly correlated with the respondents' Math IV grade. This is evidenced by the rho value of -.035 which is significant at .684 levels much greater than the allowable limit at .050 significant level. So, the rho value does not fall into the rejection region and that the null hypothesis cannot be rejected. This means occupation of parents has nothing to do with the respondents' grade in Mathematics IV.

Table 4c. Spearman's rho Correlation Between the Respondent's Occupation of Parents and Math IV Grade, SASE-Math and over-all SASE-Result.

Occupation of Parents	Math IV	SASE-Math	SASE-Gen. Rating
Correlation Coefficient	-.035	.363*	.260*
Sig. (2-tailed)	.684	.000	.002
N	.684	.000	.002

*Correlation is significant at the .05 level (2-tailed)

Finally, Math IV grade of the respondents is significantly correlated with their SASE math and SASE general rating. This is supported by the rho values of .202 and .323 respectively as shown in Table 4d. Both values are positive which indicate that the respondents' grade in Math IV determines their SASE math and SASE general ratings; i.e. if their grade in Math IV is low, then it can be expected that their SASE rating will be low also. On the other hand, if their grade in Math IV is high, then they can be sure of high or passing grade in System Admission and Scholarship Examination (SASE).

Table 4d. Spearman's rho Correlation Between the Respondents Math IV Grade and SASE-Math and Over-all SASE-Result.

MATH IV GRADE	Math IV	SASE-Math	SASE-Gen. Rating
Correlation Coefficient	1.000	.202*	.323*
Sig. (2-tailed)		.017	.000
N	140	140	140

*Correlation is significant at the .05 level (2-tailed)

VII. SIGNIFICANT DIFFERENCE BETWEEN THE RESPONDENTS' LEVEL OF PERFORMANCE IN MATHEMATICS IV, MSU-SASE MATH AND GENERAL RATING BASED ON THE RESPONDENT'S IDENTIFIED PROFILE

a) Gender

Since gender is either male or female, there are only two means being compared and so the independent sample T-test is used. As shown in table 5a, none the sig. 2-tailed value is less than $\alpha = .05$. This means none of the t value falls into the rejection region, so the null hypothesis: there is no significant difference in the respondent's level of performance in Mathematics IV, MSU-SASE Math and MSU-SASE general rating when the data is categorized according to gender, cannot be rejected. In other words, the high school graduates of the two laboratory high schools do not differ in their Math IV grade, MSU-SASE math score, and MSU-SASE general rating as far as their gender is concerned. Please refer to page 56 for the SPSS output of this problem.

Table 5a. Mean Difference According to Gender to Mathematics IV Grade, MSU-SASE Math Score and MSU-SASE General Rating

	Gender	N	Mean	Standard Deviation	Mean Difference	df	T Value	Sig. 2-tailed
Math IV Grade	M F	4 8 9 2	84.6 9 84.0 0	5.728 4.596	.69	13 8	.771	.442
MSU-SASE Math Score	M F	4 8 9 2	17.2 9 17.1 2	6.549 6.216	.17	13 8	.153	.879
MSU-SASE Gen. Rating	M F	4 8 9 2	65.1 7 66.1 0	15.517 13.830	-.93	13 8	-.362	.718

b) Age

Since there are 3 age categories in this study, a one-way analysis of variance or F test is used. Table 5b shows the sig. value Math IV grade is .004 which is less than $\alpha = .05$, while those of MSU-SASE math Score and MSU-SASE general rating are .769 and .469 respectively, which are both greater than $\alpha = .05$. This means the F value of Math IV grade equals 5.693 falls into the rejection region. Hence, the null hypothesis: there is no significant difference in the respondents' level of performance in Mathematics IV when the data is categorized according to age, has to be rejected.

While the F value of MSU-SASE math score equals 0.264 and MSU-SASE general rating equals 0.762 do not fall into rejection region. So, the null hypothesis: there is no significant difference in the respondents' level of performance in MSU-SASE math score and general rating when the data is categorized according to age, cannot be rejected. Please refer to pages 57-58 for the SPSS output of this problem.

Table 5b. Mean Difference According to Age of Mathematics IV Grade, MSU-SASE Math Score and MSU-SASE General Rating

		Sum of Square	df	Mean Square	F	Sig.
Math IV Grade	Between Groups Within Groups Total	266.973 3212.249 3479.222	2 137 139	133.468 23.447	5.693*	.004
MSU-SASE Math Score	Between Groups Within Groups Total	21.211 5511.324 5532.535	2 137 139	10.606 40.229	0.264	.769
MSU-SASE Gen.	Between Groups Within Groups Total	316.141 28433.995 28750.135	2 137 139	158.070 207.547	0.762	.469

Rating	Within Groups Total					
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*significant at $\alpha = .05$

In other words, the high school graduates of the two laboratory high schools differ in their Mathematics IV grades, i.e., the grades of those who are below 16 years old, exactly 16 years old, and over 16 years old are not all the same; while their MSU-SASE math score and general rating do not differ at all.

c) Parents' Occupation

In this study, parents' occupation is categorized into 8 so, a one-way analysis of variance or F test is also used. As can be seen in Table 5c all the Sig. values are less than $\alpha = .05$, the designated level of significance. So, all the F values fall into the rejection region, hence, the null hypothesis: there is no significant difference in the respondents' level of performance in Mathematics IV, MSU-SASE mathematics and general rating when the data is categorized according to parents' occupation, has to be rejected. In other words, the high school graduates of the 2 laboratory high schools differ in their performance in Mathematics IV, MSU-SASE mathematics and general rating as their parents' occupation differ from one another.

Table 5c. Mean Difference According to Parents' Occupation of Mathematics IV Grade, MSU-SASE Math Score and MSU-SASE General Rating

		Sum of Square	df	Mean Square	F	Sig.
Math IV Grade	Between Groups	384.601	7	54.943	2.344	.027
	Within Groups	3094.621	132	23.444		
	Within Groups	3479.222	139			
	Total					
MSU- SASE Math Score	Between Groups	1166.241	7	166.606	5.037	.000
	Within Groups	4366.295	132	33.078		
	Within Groups	5532.536	139			
	Total					
MSU- SASE Gen. Rating	Between Groups	3356.750	7	479.536	2.493	.019
	Within Groups	25393.386	132	192.374		
	Within Groups	28750.136	139			
	Total					

VIII. CONCLUSION

For future college entrance examination, there must be a well-coordinated action between the senior high school officials and the tertiary school officials in order to prepare thoroughly the students for any college entrance examination. In many instances, the students are generally not prepared to enter higher education.

The finding of this research shows that the high school graduates of the two laboratory high schools in Jolo have only average level of mathematical

abilities with a score in Mathematics IV of 75 to 96 with a mean grade of 84.24. This mean is equivalent to “average.”

The respondents, MSU-SASE Mathematics IV score range from 5 to 31 out of 40 items. The mean score is 17.17 which is equivalent to average while their MSU-SASE general rating is from 36 to 106. The highest possible rating is 180. The mean rating was 65.78 which is equivalent to below average. There were 40 items of math in the MSU SASE. The highest score obtained by the respondents was 31 and lowest score was 5. The mean score of 17.17 was way below the 50% mark or 20 correct.

If 20 were to be the basis or lowest passing mark, then only 50 out of 140 respondents passed in Math of MSU-SASE. This is equivalent to 35.71% or a little over one-third of the total. Indeed, improving the teaching of mathematics as well as the students’ performance is highly needed.

The younger respondents have higher grade in Mathematics IV than the older ones; gender of the respondents has nothing to do with their Math IV grade, math score and general rating in MSU-SASE; respondents with better parents’ occupation got higher in mathematics score and general rating in MSU-SASE; and grade in math 4 determines math score and general rating in MSU-SASE, i.e., respondents with high grade in Math IV got high score in math and high general rating in MSU-SASE, likewise respondents with low grade in Math IV got low score in math and general rating in MSU-SASE.

When categorized according to gender, there is no significant difference between the male and female performance in Mathematics IV as well as in their mathematics rating and general rating in MSU-SASE. But the respondents differ significantly in their Mathematics IV grades when they are categorized according to age; while no significant difference observed in their MSU-SASE math score and MSU-SASE general rating. Finally, there is significant difference in the respondents, performance in Mathematics IV MSU-SASE mathematics, and MSU-SASE general rating when they are categorized according to their parents’ occupation.

REFERENCE

- Babbie, Earl and Fred Halley.** Adventures in Social Research – Data Analysis Using SPSS for Windows 95. Thousand Oaks, California: Pine Forge Press, 1998
- Lardizabal, Amparo S., Alicia S. Bustos, Luz C. Bucu, and Maura G. Tangco.** Principle and Methods of Teaching. Quezon City: Phoenix Publishing House, Inc., 1996
- Padua, R. N. and R. C. Santos.** Educational Evaluation and Management Theory, Practice and Application. Quezon City: National Book Store, 1987
- Presidential Decree 193 on May 15, 1973** – National Integration Study Grant Program (NISGP)
- Presidential Memorandum No. 518** – Study Grant for Rebel-Returnees under the National Reconciliation and Development program.
- Quiason, Rey Jr. L. and Vengie Aquino Quiason,** “A Scholarship Guide to Earning a College Diploma,” Manila Bulletin, 18 April 2004
- RA 4090** – The State Scholarship Law (SSP)
- RA 6014** – Student Loan Fund Authority – (Study Now – Pay Later Plan)
- RA 6728** – Private Education Student Financial Assistance Program (PESFA)
- RA 7687** – Science and Technology Scholarship Program (STSP)
- RA 8545 (amending RA 6728)** – College Faculty Development Fund (CFDF)
- Sakili, Muammar,** “Teaching Effectiveness in Mathematics among Laboratory High School Teachers in Jolo, Sulu: An Assessment.” Master’s Thesis Sulu State College, Jolo, Sulu, 1999

Taruc, Norma B. "The Difficulties of High School Students in Solving Linear Equations." Master's Thesis, Zamboanga A.E Colleges, Zamboanga City, 1984