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Impact of the performance of G.C.E. (O/L) Mathematics on the subject combined Mathematics at the G.C.E. (A/L) Examination

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In Sri Lanka, G.C.E (O/L) and G.C.E (A/L) are two important national level examinations conducted by the Department of Examination. Both are highly competitive examinations and the minimum entry requirement to follow Combined Mathematics (CM) at the AL is a credit pass in OL Mathematics. From the surveyed data it is noted that, island wide, 50 percent of the students have failed the OL mathematics during the period 1996 to 2000.Nevertheless students who studied in G.C.E (A/L) science stream achieved better performance in G.C.E (O/L) Mathematics (credit or distinction passes) but they all do not achieve good performance in the subject CM at the G.C.E (A/L). Thus it is an interesting task to investigate the level of correlation between the performances of the two subjects at the two important national level examinations. The objective of this research is to establish two performance indicators (PIM; PIC) as an educational measurement for the two subjects G.C.E (O/L) Mathematics and CM at the AL in respect of students who studied G.C.E (A/L) physical science stream and to find out whether there is a correlation between the performance indicators for the two subjects.

Survey research method was utilized in two stages: documentary survey (using charts) and opinion survey (using Likert – type opinionnaire). A sample of 624 students from National schools, 1AB schools, and 1C schools in the *Batticaloa* district was surveyed. Data were analyzed using quantitative and qualitative methods for the stratified random samples from the students' population. Correlation coefficients were calculated using statistical package for social studies (SPSS).

PIM is between 2.80 and 2.90 and it is accomplished to 3 (PIM $\geq$ 2.80); PIC is between 0.67 and 0.84 so it is not accomplished to 1 (PIC $\leq$ 0.84). Magnitude of Spearman's correlation coefficient (ρ) = 0.332 which is significant at the .01 level (1-tailed). And the magnitude of the Pearson Correlation coefficient (r) = 0.312 which is significant at the .01 level (1-tailed). Therefore 10 percent of explained variance in combined mathematics is predictable by the achievement in OL mathematics. Both yields are not the same as ρ = 0.332, r = 0.312, but positive low values; difference is 0.020, in the case there are ties, the results need not be identical, but the difference will be insignificant. Thus the correlation-ship between OL mathematics and AL combined mathematics is low but positive. Success in combined mathematics by the achievement in OL mathematics is only 10 percent with respect to r and 11 percent with respect to ρ. Some other factors, about 90 percent (for r) and 89 percent (for ρ) influenced the achievement of combined mathematics such as difficulty in understanding concepts in combined mathematics, students' motivation, teachers' commitment, parents' commitment, learning environment, family income, family education, etc.

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