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A STUDY ON THE PERFORMANCE OF MATHEMATICS AND SCIENCE SUBJECTS USING CANONICAL CORRELATION ANALYSIS

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Education has become one of the fundamental rights for every child. Particularly, Mathematics and Science education in secondary schools is the most important factor in the promotion of science capacity building of any country. However, there are multidimensional factors affecting the performance in mathematics and science subjects of the students, such as gender, social economic status, study time, residential area, available resources, etc. This inspires us to study the factors influencing the performance of mathematics and science subjects of the students. The main aim of this study is to investigate the influential factors on the performance of mathematics and science subjects of grade 10 students in Puttlam district. Data were collected from 643 students from randomly selected government schools in Puttlam district using a questionnaire. Since there are set of multiple independent and dependent variables, Canonical Correlation Analysis methodology was used to analyze the data. In addition, likelihood ratio test and redundancy measure were used to identify the significance of canonical correlation. First, based on likelihood ratio test and redundancy measure, first pair of canonical variates is retained among the two pairs of canonical variates. Secondly, the results based on the canonical loadings revealed that there exists high degree of inter-correlation among the two dependent variables. Further, according to the results of canonical coefficient and canonical loading, it was observed that residential area and study time have a significant effect on the performance of mathematics and science subjects. Furthermore, it was revealed that the amount of time a student spends on his or her studies increases, the academic achievements improves. In addition, parent's educational level is the most important variable among the social economic status variables considered. These findings support to improve the performance of mathematics and science subjects.

Keywords: *Canonical correlation, Likelihood Ratio Test, Redundancy Measure*