

EFFECT OF USING ESSENTIAL LEARNING CONCEPTS ON STUDENTS' G.C.E. (O/L) MATHEMATICS PERFORMANCE

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Mathematics is a highly important subject in the Sri Lankan junior secondary curriculum. From 2010 to 2014, the students' pass rate of mathematics at G.C.E. (O/L) examination was 55% on average. Necessary recommendations to increase these pass rates have been proposed by a Special Consultative Committee. Based on some of the recommendations, 53 Essential Learning Concepts (ELCs) were identified to assess the learning outcomes of the curriculum. The first question paper of G.C.E. (O/L) was formulated in accordance with these ELCs. This was first implemented in the year 2016. Consequently, the pass rate of mathematics increased to 67.2%, an increase of 12% over the year 2015. Since this is a considerable growth in the pass percentage, it is important to examine whether the changes to the structure of the examination based on the introduction of ELCs affected the results. Thus, the main purpose of this study was to find the effects of using ELCs on students' G.C.E. (O/L) mathematics performance. The mixed-methods approach was used in this study as evaluating both qualitative and quantitative aspects with triangulation would strengthen the findings. The multi-stage sampling method was used to select the sample, which consisted of 10 teachers and 200 students of 1AB schools, 100 students of 1C schools, and 100 students of Type 2 schools from Mulatiyana Educational Zone in the Southern Province. Two test papers were constructed to compare the performance level of the students, one limited to ELCs and the other one not limited to ELCs. Semi-structured interview schedules were developed for teachers to evaluate their perception of new paper structure with ELCs. The paired sample *t*-test revealed that the students' performance in ELC based examination was significantly higher compared to the examination not based on ELCs ($p < 0.01$). Moreover, qualitative analysis of teachers' responses revealed that ELC based examinations could improve results. It is also revealed that remedial programmes that target a specific number of learning outcomes make it easier for students to pass the examination. Hence, the paper format with ELCs shows a direct impact on the growth rate of the G.C.E. (O/L) pass rate. However, students could score up to 50% marks in the first paper based on the identified ELCs. As such, without some content knowledge in the syllabus, students can easily obtain a high grade in mathematics at G.C.E. (O/L). Thus, it is suggested to use the identified ELCs for the first question paper, and to improve the second question paper to get a meaningful evaluation of the students' achievements.

Keywords: Essential Learning Concepts (ELCs), G.C.E. (O/L), Mathematics, Performance