LEARNING ABILITY OF G.C.E. (ORDINARY LEVEL) STUDENTS IN GEOMETRY

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In Sri Lankan schools, geometry is taught in small units as part of the mathematics subject with a few of the basic theorems and results. Despite its simplicity, interest in geometry among senior secondary school students is noticeably low as observed by various teachers and marking examiners of G.C.E. (O/L) examinations. In order to confirm the low performance, we considered the 'Item Analysis Report' obtained from the Research and Development Branch of Department of Examination. The purpose of this study is to identify the reasons for the lack of interest in geometry among the students and, to suggest possible remedial steps.

Teaching-learning processes of mathematics in various schools were observed. We decided to observe the cyclic quadrilateral unit at the G.C.E. (O/L) classes. Four periods were allocated for this unit by the curriculum makers. Fifteen mathematics teachers were requested individually to prepare the lesson in any approach they choose and conduct the lesson. Time allocation was made with the school management board to avoid the time-table clash.

Fifteen classrooms (grade eleven) from five districts were selected as the sample. The student population was categorized in various subgroups such as gender, language, geographical and school type (1AB, 1C, 2). Information was also gathered from Advanced Level students, and undergraduates and academic staff of this university to see how it affects the higher education.

We conducted a post-test to find out the performance of the students. The questions were taken from the past G.C.E. (O/L) examination question papers. All the questions were related to cyclic quadrilateral.

From the classrooms observation report and the post-test, we conclude teaching methodology of geometry affects the learning ability of the students. We come to the conclusion that some teachers lack sufficient knowledge in the subject by our classroom observations. Teachers used algebraic notation to prove theorems and to find values of angles. In the classroom activities, students spent more time to find the values of angles throughout the allocated time. Therefore, they show less ability in problems of proof type. In some classrooms, the number of students is high and therefore individual attention to students was a difficult task. Most of the teachers used lecture method, because of insufficient time allocation to cover the syllabus in time and there was no student-centered method in the classroom activities.

From the post-test, we have found that most of the students do not use geometrical notation and technical terms in appropriate ways and do not attempt to prove the theorems. They neglect the questions where more than one theorem need to be proved or angles to be computed. Students do not show interest in the proof type questions. Students have low level of capability to solve the problem with the geometrical notation.