Effect of Guided Discovery Teaching Method on Students' Performance in Science in a Collaborative Learning Environment

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ABSTRACT

This study examined the effect of guided discovery and regular 5E teaching methods on Science achievement of grade 9 students. A quasi-experiment included a prepost test design with a non- randomized treatment group and 5E regular teaching method as a control group was used in this study. Two Tamil medium National schools located in Colombo district were selected using a criterion sampling technique. A sample of 147 grade 9 students (75 males and 72 females) was drawn from their respective intact classes out of ten classes. Researcher-made Science Achievement Test comprised of 20 multiple choice questions was administered before and after the treatment to measure the level of student's achievement in Science. The reliability of the tool 0.653 was established using test-retest method. The data were analyzed using Analysis of Covariance (ANCOVA). The results showed that the guided discovery teaching method was most effective in improving students' performance in science. The adjusted R squared value indicated that approximately 63% of the total variance in the posttest scores was accounted for by the teaching methods used in this study. The difference between the achievements of male and female students taught with guided discovery and regular 5E was statistically significant. Males outperformed females on science. Also there existed a statistically significant difference in achievement among the high, medium and low achiever groups in the experimental group. High achievers benefitted more when taught with guided discovery method, than medium and then low achievers. It is recommended that science teachers should undergo extensive in-service training for effective implementation of 5E learning cycle.

Keywords - Achiever groups, Collaborative learning environment, Guided discovery, Science achievement