EFFECTS OF CONCEPTUAL CHANGE INSTRUCTION ON ACHIEVEMENT, ATTITUDES AND MOTIVATION OF NINTH GRADERS' MATHEMATICS IN MALDIVES

M. Amir

Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka
Feydhoo School, Feydhoo, Addu Atoll, Maldives

Teaching for conceptual change requires addressing of students' misconceptions and then instructing with scientifically accepted concepts. This study aimed to examine the effects of Conceptual Change Instruction (CCI) on ninth graders' mathematics achievement, attitudes towards mathematics and their motivation levels in mathematics. It was hypothesized that if CCI is an effective method, then it would improve students' achievement, attitudes and motivation in mathematics. The null hypothesis is that achievement, attitudes and motivation remain unchanged when tested with CCI.

Two groups (experimental and control) of ninth graders from 'Feydhoo' school, in Addu Atoll of the Republic of Maldives were used. Control group was taught by lecture based traditional instruction while the experimental group was taught by the CCI method. *Quasi*-experimental research design was used since random assignments of the subjects were not possible. Participants were initially matched into experimental and comparison groups using the Pretest-Posttest Nonequivalent – Groups Design method to ensure group equivalence. The groups were compared on the achievement, attitudes and motivation scores of mathematics. The study was carried during the final term of the academic year 2013 and utilized three unit plans: "Fractions", "Algebraic Manipulation" and "Similarity of shapes", which were specially designed to elicit conceptual change. Scores on the achievement tests were collected at the beginning and at the end of each unit. Attitude and motivation scales were administered only two times; at the beginning and immediately after the completion of the study. The hypotheses were tested using a series of independent sample *t* - tests and Mann-Whitney U tests.

Results indicated that CCI units caused statistically significant differences with moderate effect sizes in the post-achievement tests and motivation scales scores in the treatment and comparison group. However, no statistically significant difference was found in the two groups' attitudes towards mathematics. The study revealed that conceptual change as a teaching strategy had a positive effect on Maldivian ninth graders mathematics achievement and motivation whilst further research is necessary to confirm the effects on attitudes.