ABSTRACT

THE EFFECT OF SCIENTIFIC ARGUMENTATION BASED LEARNINGS IN TEACHING OF "CELL DIVISION AND INHERITANCE" UNITS TO 8TH GRADE STUDENTS

Ceyda BALCI

M.Sc. Thesis, Department of Elementary Education
Supervisor: Assoc. Prof. Dr. Nilgün YENİCE
2015, 211 pages

The main aim of this study is to examine the effects of using scientific argumentation in the unit "Cell Division and Inheritance" in 8th grade students lesson, to students' academic achievement, level of unterstanding nature of science, willingness to participate the argument and attitudes towards Science and Technology lesson. Groups are selected from eighth graders with in Middle school of middle socioeconomic level in Sultangazi district of İstanbul. Quasi-experimental design with pre-test post-test control group was used in the study. The participants of the research, as in 38 students in experiment group and 39 students in control group (total is 77). The " Cell Division and Inheritance " unit, the Achievement Test, The Nature of Scientific Knowledge Scale, Argumentative Survey and Attitudes Towards Science and Technology Lesson Scale, are the tools of data collection for research. The achievement test developed in order to measure the students' academic achievement, the nature of scientific knowledge scale, argumentative survey and attitudes towards science and technology lesson scale were applied the both groups pre and post application. The data were analyzed with t-test, variance analysis and covariance analysis (ANCOVA). Eventually the experiment group which was used the scientific argumentation based learnings process was more accomplished than the other group in academic achievement, nature of scientific knowledge, willingness to participate the argument and attitudes towards science and technology lesson.

Keywords: Scientific Argumentation, Science Education, Cell Division and Inheritance, Nature of Scientific Knowledge, Attitudes Towards Science and Technology Lesson