

Investigation of the Development of 7th Grade Students' Skills to Define, Construct and Classify Polygons with Cabri Geometry

Ahmet Yanik

Emine Cahide Karaali Ortaokulu,
Eskişehir, Turkey
ahmet_ynk@hotmail.com

Tuba Ada

Anadolu University, Turkey
tyuzugul@anadolu.edu.tr

Abstract

The aim of the study is to investigate the development of 7th Grade students' skills to define, construct and classify polygons in geometry course with Cabri Geometry II Plus software geometry, an example of dynamic geometry software. The study used qualitative and quantitative research methods in accordance with the research objectives and focus, so it was designed as a mixed method research. The participants of the study were 21 7th Grade students, 11 girls and 10 boys, who were attending a secondary school in Eskişehir city center during 2012-2013 school year. As a source of qualitative data, four students in this class were selected for the interview. The data were collected with "Polygon Identification and Classification Scale", one group pre-test and post-test in order to determine the level of development and significance level of the gender variable, and Cabri Geometry worksheets developed by the researchers. The quantitative data were analyzed with SPSS Statistics 20. Also, t-test and Wilcoxon test were used in data analysis. The data obtained from the interviews were analyzed through descriptive analysis. The qualitative data showed that the mean of correct answers given by the students to the questions in the Polygon Identification and Classification Scale was higher in the post-test than the pre-test. The t-test results for the pre-test and post-test mean scores and the results of the paired samples test showed a significant difference in favor of the post-test. There was no significant difference based on the gender variable. On the other hand, the data obtained from the interviews were coded under five different themes. The activities about the concept of formation showed that incorrect formations caused incorrect generalizations about the shapes. The study found that, as a result of the teaching practice in the study, hierarchical relations among polygons were expressed correctly. Finally, after the practice, the participants succeeded in defining polygons with their own words.

Keywords: *Geometry; polygons; Cabri Geometry; geometric construction*