

The Role of Dynamic Geometry Software in the Process of Learning: GeoGebra Example about Triangles

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ABSTRACT

Specific benefits of integrating software into mathematics teaching and learning are appreciated all over the world. It is obvious that this consideration has to be discussed along with certain teaching examples. Furthermore, classroom situations may also give opportunities to see possible effects on teaching and learning of mathematics. Thus, it can be said that computer can really lead to an improvement of teaching and learning mathematics by establishing possible benefits of software.

As dynamic mathematics software, GeoGebra and its use is getting increasingly common all over the world as well. In addition to constructing geometry as a dynamic program, it also provides, as a key element of learning geometry, visualization, conjecture, creation, discovery, proof and etc. This study is about using GeoGebra for triangles in eighth grade. The study is conducted in the 2009-2010 academic year. Two eighth grade classes from a primary school have been selected as experiment and control groups. Before the classroom activities, a pre-test was applied to the both groups to determine the students' attainment level. The questions covered seventh grade objectives for the subject. In the official curriculum, teaching of triangle for eighth grade takes total of fifteen hours with eight different objectives. These objectives are mainly concentrated on the construction of triangles with specific properties such as; drawing a triangle with a given measures of sufficient elements, constructing mediator, perpendicular bisector, angle bisector and altitude of a triangle etc. Some of them aim to establish special features of triangles such as; determining the relationship between the sum or difference of two sides' lengths of the triangle and the length of the third side, determining the relationship between the sides' lengths of a triangle and corresponding angles' degrees between the sides, explaining the equality and similarity terms associated with triangles. etc. .

A three weeks course has been planned in accordance with the official course curriculum for the experiment group. The course contained GeoGebra activities and practices about the stated achievements. The planned and GeoGebra constructed sixteen main activities which demand effective use of GeoGebra for this grade shared with the students during the learning and teaching process. Simultaneously, the control group continued their formal teaching and learning procedure. After the three weeks, a post-test was applied to both groups simultaneously. The post-test contained questions about all the stated objectives for the eighth grade. The post-test has been used to see possible

effects of GeoGebra on students' success. This presentation will mainly contain selected samples from the classroom used sixteen GeoGebra activities. It will give a great opportunity to discuss the issues and outcomes of the real classroom applications with the colleagues. The presentation will also include some basic findings of the tests.

Keywords

Dynamic Geometry, GeoGebra, Students' Success, Triangles