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Application of Geogebra in Creating Mathematical-Logical Games

Extended summary

Game as the subject of the research appears with antique philosophers. Plato was the first to analyse and stress the positive influence of games in educational and pedagogical work. Nowadays, game has become general social phenomenon. It is a method of learning which is special and is mostly used in preschool educational and pedagogical work. It is present in lesser extent, in lower grades of the primary school, and in upper grades, it almost does not exist. It is practically used by some teachers to motivate students. This trend is mainly justified by complexity of teaching contents at later educational levels. General impression about the positive effect of play in learning has been proved by experimental research at the end of the last century. A group of pedagogues from the American Navy Research and Developmental Centre determined some advantages of learning through play in 1992. This advantage is particularly visible in motivational role, faster learning and continuous gaining knowledge.

Contemporary IT gives play as means of learning new dimension and wide application. A great number of electronic educational games are accessible on the Internet and hard discs. There have been more and more didactic games, which are applicable to definite teaching contents recently. It can be said that Mathematics teaching leads in this field. There are programmes, which apart from methodological-theoretical application can be used for creating didactic games. One of such programme packages for learning Mathematics, which has become popular recently, is Geogebra. Geometrical transformations, creating random numbers and dynamic functions of the programme can be efficiently applied in crating different combined and logical problems and games for different levels of education. These programmes can be

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used independently from classes and have significance in popularization of Mathematics. Integral part of this package is represented by the basis of papers and forum in which users can publish their papers and exchange experience. In this way, we can have creative cooperation between teachers in enriching teaching praxis.

In this paper, we are going to describe some of the possibilities of Geogebra in creating mathematical-logical games prepared for high school students and upper students of upper grades of the primary school. In order to present precisely these approaches, we are going to show icons of most frequently used commands. Practically, we are going to show examples of creating the following games, brainteasers:

- Problems with matches
- Tan gram
- Domino Pasians
- Mathematical problems at the chess table

It has been stated that one of the advantages of Geogebra is that all the papers can be published at the open base GeogebraTube in the Internet. In this way, they can be accessible to all students and teachers and all the interested ones in Mathematics and logical problems. At the reference list, there is a web page from Geogebra base in which the examples of these games were given.

Key words: geogebra/ mathematical-logical games/ solving problems.

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