

TESTING OF THE GEOMETRICAL IMAGINATION

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The poster deals with the geometric imagination in relation to intelligence tests. During an exploratory investigation of geometric imagination of students aged 15-18 years, a test was created. The test evaluates partial and combinative abilities of students of this age group.

We define Geometrical Spatial Imagination as "a set of abilities related to reproduction and anticipation, static and dynamic ideas about shapes, about attributes and about relations between geometrical figures in space".

The geometrical spatial imagination is tested by e.g. Standard Test of Squares which is a part of Amthauer's I-S-T tests of universal intelligence and which comes out from Rybakoff's figures. We created a didactical test based on a similar principle. The task of the test is as follows: "Divide an irregular plane figure into two parts with one cut only and then put these two parts together to create an equilateral triangle."

The characteristic features of our test are as follows:

- It is focused on the geometrical spatial imagination,
- It is interesting for students and it increases their interest in geometry,
- It is aimed at the age group 15-18 years of age,
- It consists of 40 tasks,
- Its evaluation process takes into account the gender of the student,
- It is easy for teachers to use it.

The test was carried out in June 2010 and 1,142 students above 15 years of age took part in this test (421 boys and 721 girls).

Our goal was to determine the quality of our measurements. Based on the results is the values of reliability of our test $r = 0.837$ and we can state that our measurements on the significant level of 0.05 can be considered valid.

It can be said that the test is suitable for verifying the level of geometric imagination of students between 15-18 years of age.

Keywords: theory of mathematics education, geometrical imagination, testing abilities