

ABSTRACT

The diploma thesis deals with the topic of concept building process in 2D geometry. The topic is aimed at preschoolers and school-aged children. The theoretical part describes the stages of human development and the cognitive stages of development. Then there are characterized the term concept, the concept building process and the stages of the language development in mathematics. The following part describes two theories about the building knowledge in Maths and the levels of thinking in geometry according to the van Hiele model. The last one chapter of this part describes the geometry curriculum within the primary school education. The method of qualitative research - participated observation – was used for the practical part. This part describes the research that consists of seven experiments. The aim of the experiments was to observe the development of children's and pupils' ideas about 2D geometric shapes. Many activities were prepared for the research. On the basis of the activities reflection the activities were changed or completed. The experiments are described by means of the phenomena that appeared. The phenomena are important for the describing the concept building process of 2D geometric shapes – a square, a circle, a rectangle, a triangle. The information from research is compared with the theory. By the end of the thesis, the extent of the aims' fulfilling is reflected and the possibilities for the following research are suggested.

KEYWORDS

analysis of pupils' work, communication, cognitive processes, polygons, concept building process in 2D geometry, language development