

ABSTRACT

The theoretical part deals with approaches to teaching, especially constructivistic, instructivistic and transmissive approach. The goal of this part is to compare the approaches and evaluate them considering the permanency of knowledge and active engagement of students. Simultaneously it aims at evaluating the approaches from the point of their of the mechanical knowledge.

The charter dealing with inquiry based mathematics education is focused on teaching related to constructivistic approach. The next chapter describes tool called concept cartoons, which can be used as a mean to research.

The theoretical part is focused on the topic of fraction, especially fraction interpretation and models and fraction representation.

The second part of the thesis describes a survey realized at basic school. I narrowed the problem to fraction interpretation and representation according to survey of student's work. The next part of research is based on this analysis.

Trying to accomplish the aims and find the answers to questions of the survey I chose strategy inspired by action research, because the main goal of the research was to improve and enhance my teaching knowledge and skills. The survey was processed qualitatively.

The making of the thesis helped me make it clear, why the topic of fractions is so difficult for students, which misconceptions appear during the lessons and which mistakes are made because of them.

KEYWORDS

Mathematics education, teaching of mathematics, discovery and inquiry, fraction, models and representations, misconceptions, creativity