

Abstract

The aim of the thesis is to present the potential of constructivist approaches to teach sequences at high school, with special attention to the problems leading to generalisation. You will read about critical points in the process of generalisation which occurred in TIMSS and PISA international studies and which were examined in the teaching experiment. The question of motivation to learn mathematics is an essential part of this thesis as well as it is an essential part of constructivist approaches to teaching.

Two chapters at the beginning analyze school curricular documents, science articles, school textbooks and TIMSS and PISA international studies which formed the theoretical frame of the teaching experiment. The teaching experiment is based on Hejný's theory of generic models and on constructivist approaches to teaching which are introduced in the third chapter. Chapter four which describes the teaching experiment and pre-experiment is the main part of the thesis. It brings inspiration how to deal with the critical points in the process of generalisation and how to motivate pupils to learn mathematics.

Key words

sequence, generalisation, mathematisation, motivation, approaches to teaching, constructivism