

## **Abstract**

This diploma thesis is focused on study of cognitive and communicative phenomena, which appear at solving exercises in semantic and arithmetic environment First-Grade Students' Stepping. These phenomena are revealed by a set of quantitative analysis experiments undertaken with first-grade pupils. Theoretical basis, which make the description of revealed phenomena possible, are generic model theory and semantic embedding of number (Hejný), procept theory (Gray and Tall), mathematical schema building theory (Hejný) and didactic constructivism, structural and semantic conception of number, process, concept, procept.