CONTENT

CHAPTER 1. GENERAL AND PARTICULAR PROBLEMS IN TEACHING MATHEMATICS

- 1.1 INTRODUCTION
- **1.2 GENERAL PROBLEMS**
- **1.3 SPECIFIC PROBLEMS**
- 1.3.1 Problems with the beginning of the lesson
 - a) Problems with the lesson beginning
 - Problems with the child
 - Problems with the learning material
 - b) Problems with stating the problem
 - Lived experiencing the problem
 - Giving meaning
 - Motivating
 - Own problem
 - Searching for a solution himself
- 1.3.2 Problems (methods) with offering the new contents
 - a) The problem of mechanical imitation
 - b) The problem of premature generalization
- 1.3.3 Problems with controlling the new
- 1.3.4 Problems of application
- 1.3.5 Problems of evaluation
- 1.4 SUMMARY

CHAPTER 2. THEORETICAL PENETRATION OF THE CONCEPT "REDUCTION OF LEARNING MATERIAL"

- 2.1 INTRODUCTION
- 2.2 WHAT IS LEARNING MATERIAL?
- 2.3 THE CHOICE OF LEARNING MATERIAL
- 2.4 WHAT IS REDUCTION?
- 2.5 THE PHENOMENOLOGICAL METHOD
- 2.6 HUSSERL AND THE CONCEPT "REDUCTION"
 - a) Eidetic reduction
 - b) Phenomenological reduction
 - c) Transcendental reduction

2.7 SUMMARY OF HUSSERL'S PRONOUNCEMENTS

2.8 PRONOUNCEMENTS OF MARTIN HEIDEGGER

- a) An intrinsic, inner concealment
- b) A covered concealment
- c) A deliberately altered concealment
- 2.9 SUMMARY

2.10 THE STEPS OF THE REDUCTION AS PROPOSED BY SPIEGELBERG

- 2.10.1 Disclosing phenomena
 - a) The intuitive operation
 - b) The analytic operation
 - c) The descriptive operation
- 2.10.2 Disclosing general essences (eidetic reduction)
- 2.10.3 Disclosing relations among the relevant essences
- 2.10.4 Disclosing the ways (modes) the phenomenon shows itself
- 2.10.5 Disclosing the constitution of phenomena in consciousness
- 2.10.6 All foreknowledge regarding the phenomenon must provisionally be suspended
- 2.10.7 The meaning of the phenomenon must be interpreted
- 2.11 THE DIDACTIC CATEGORY "REDUCTION"
 - a) What is a didactic category?
 - b) The meaning of the didactic category "reduction" for practice
- 2,12 REDUCTION OF LEARNING MATERIAL IN GENERAL

CHAPTER 3. THE PLACE AND MEANING OF REDUCING THE LEARNING MATERIAL IN THE LESSON STRUCTURE

3.1 INTRODUCTION

3.2 THE TEACHING AIM AND REDUCING THE LEARNING MATERIAL

- 3.2.1 General
- 3.2.2 The teaching aim and the "what" of teaching
- 3.2.3 Important aspects of the teaching aim
 - a) The syllabus theme (its formative quality) and reducing the learning material
 - b) Lesson aim and reducing the learning material
 - c) The learning aim, stating the problem and reducing the learning material
 - d) Formulating the problem and reducing the learning material
 - e) The choice of example and reducing the learning material

- The example and the unique nature of the subject matter
- The example and the method
- The example and meaningful relationships
- The example and the readiness of the child

3.3 THE COURSE OF THE LESSON AND REDUCING THE LEARNING MATERIAL

- 3.3.1 Actualizing foreknowledge
 - a) What is actualizing?
 - b) What is foreknowledge?
 - c) Actualizing foreknowledge and the preparation by the teacher
 - d) Actualizing foreknowledge and the choice of a lesson form
 - e) Actualizing foreknowledge and the choice of certain didactic principles
- 3.3.2 Stating and formulating the problem
- 3.3.3 Exposing the new
 - a) What is exposition?
 - b) Exposition and examples
- 3.3.4 Actualizing the learning content
 - a) Reviewing the essences
 - b) Practicing *to* insight
 - c) Naming and schematizing
- 3.3.5 Functionalizing as a moment of the course of the lesson
 - a) What is functionalizing?
 - b) Practicing *of* insight as a moment of functionalizing
 - c) Integration as a further moment of functionalizing
 - d) Applications and functionalizing
- 3.3.6 Evaluating
 - a) What is evaluating?
 - b) The aim of evaluating
 - c) The necessity of evaluation
- 3.4 SUMMARY

CHAPTER 4. PRACTICAL EXAMPLES TO ILLUSTRATE THE SENSE AND MEANING OF REDUCING THE LEARNING MATERIAL FOR CONSTRUCTING A MATHEMATICS LESSON STRUCTURE

4.1 INTRODUCTION

4.2 AN EXAMPLE FOR EACH PHASE OF THE LESSON STRUCTURE

4.2.1 The learning aim and reducing the learning material

4.2.2 The lesson aim and reducing the learning material

4.2.3 Actualizing foreknowledge and reducing the learning material

4.2.4 Stating and formulating the problem and reducing the learning material

4.2.5 Exposing the new and reducing the learning material

4.2.6 Controlling the new and reducing the learning material

4.2.7 Functionalizing the new insights and reducing the learning material

4.2.8 Evaluating and reducing the learning material

4.2.9 Summary

4.3 AN EXAMPLE OF A COMPLETE LESSON STRUCTURE

BIBLIOGRAPHY