# TABLE OF CONTENTS


| | Page |
|---|---|
| Ratification Sheet | *i* |
| Biography | *ii* |
| Abstract | *iii* |
| Preface | *iv* |
| Table of Contents | *vi* |
| List of Figures | *ix* |
| List of Tables | *x* |
| List of Appendices | *xi* |
| **CHAPTER I INTRODUCTION** | **1** |
| 1.1. Background | 1 |
| 1.2. Problem Identification | 9 |
| 1.3. Problem Limitation | 9 |
| 1.4. Problem Formulation | 10 |
| 1.5. Research Objectives | 10 |
| 1.6. Research Benefits | 10 |
| 1.7. Operational Definition | 11 |
| **CHAPTER II LITERATURE REVIEW** | **13** |
| 2.1. Theoretical Framework | 13 |
| 2.1.1. Representation | 13 |
| 2.1.2. Representation in Mathematics | 13 |
| 2.1.3. Mathematical Representation Ability | 15 |
| 2.1.4. Cooperative Learning Model | 18 |
| 2.1.4.1. The Steps of Cooperative Learning Model | 20 |
| 2.1.4.2. Cooperative Learning Model Type Teams Games Tournament Model | 21 |
| 2.1.5. Relationship between Cooperative Learning Model Type Teams Games Tournament to Student's Mathematical Representation Ability | 25 |
| 2.1.6. Conventional Learning Model | 27 |
| 2.1.7. The Comparison between Cooperative Learning Model Type Teams Games Tournament and Conventional Learning Model | 28 |

2.1.8. Learning Theory Support 30
2.1.8.1. Learning Theory Support by Vygotsky 30
2.1.8.2. Learning Theory Support by Brunner 31
2.2. Conceptual Framework 33
2.3. Action Hypothesis 35

**CHAPTER III RESEARCH METHODOLOGY 36**

3.1. Location and Time of Research 36
3.2. Population and Sample of Research 36
3.3. Variable of Research 36
3.3.1. Independent Variable 37
3.3.2. Dependent Variable 37
3.4. Type and Design of Research 37
3.5. Procedure of Research 37
3.6. Instrument of Research 40
3.6.1. Initial Test 40
3.6.2. Observation Sheet 40
3.6.3. Test of Mathematical Representation Ability of Students 40
3.6.3.1. Validity of Test 43
3.6.3.2. Reliability of Test 45
3.7. Data Analysis Technique 46
3.7.1 Observation Sheet 46
3.7.2 Normalized Gain (N- Gain) 47
3.7.3 Normality Test 48
3.7.4 Homogenous Test 48
3.7.5 Hypotheses Test 49

**CHAPTER IV RESULT AND DISCUSSION 51**

4.1. Result of Research
4.1.1. The Description of Students' Mathematical Representation Ability 51
4.1.2. Analysis of Research Data 56
4.1.2.1. Normality Test 56
4.1.2.2. Homogeneity Test 59
4.1.2.3. Compare Means Test (One Tailed) 61
4.1.2.4. Analysis of Observation Sheet 64
4.2. Discussion of Research 66
4.2.1. Students' Mathematical Representation Ability 66
4.2.2. The Learning Process which Support Research Result 68

**CHAPTER V CONCLUSION AND SUGGESTION** **70**

5.1 Conclusion 70
5.2 Suggestion 70

**REFFERENCE** **71**
**APPENDICES** **74**

UNIVERSITAS NEGERI MEDAN
UNIMED
THE Character Building UNIVERSITY