

LIST OF CONTENTS

SHEET OF LEGITIMATION

DECLARATION

| | |
|---|-----------|
| ABSTRACT | i |
| PREFACE | iii |
| ACKNOWLEDGEMENT | iv |
| LIST OF CONTENTS | vi |
| LIST OF TABLES | viii |
| LIST OF FIGURES | ix |
| LIST OF APPENDIX | x |
| CHAPTER I INTRODUCTION | 1 |
| A. Background | 1 |
| B. Research Questions | 4 |
| C. Research Objective | 4 |
| D. Research Benefit | 4 |
| E. Organizational Structure of Research Paper | 5 |
| F. Limitation of Problem | 5 |
| CHAPTER II THE EFFECT OF THINK-PAIR-SHARE STRATEGY ON STUDENTS' COMMUNICATION SKILL AND CONCEPTUAL MASTERY IN LEARNING LIGHTS AND OPTICS | 7 |
| A. Think-Pair-Share Strategy | 7 |
| B. Students' Communication Skill | 9 |
| C. Students' Conceptual Mastery | 10 |
| D. Lights and Optics | 12 |
| E. Relevant Research | 22 |
| CHAPTER III RESEARCH METHODOLOGY | 26 |
| A. Research Method and Research Design | 26 |
| B. Participants, Population, and Sample | 27 |
| C. Research Instruments | 27 |
| D. Instrument Validation Results | 29 |

| | |
|--|-----------|
| E. Procedure | 30 |
| F. Data Analysis | 33 |
| G. Operational Definition | 34 |
| CHAPTER IV RESULTS AND DISCUSSION | 36 |
| A. Implementation of Think-Pair-Share Strategy | 36 |
| B. The Effect of Think-Pair-Share Strategy on Students' Conceptual Mastery | 38 |
| C. Profile of Students' Communication Skill | 46 |
| CHAPTER V CONCLUSION AND SUGGESTION | 51 |
| A. Conclusion | 51 |
| B. Suggestion | 51 |
| REFERENCES | 53 |
| APPENDIX | |

LIST OF TABLES

| | | |
|------------|---|----|
| Table 2.1 | Analysis of Core Competence and Basic Competence on “Lights and Optics” | 12 |
| Table 3.1 | One-Group Pretest-Posttest Design | 26 |
| Table 3.2 | One-Group Pretest-Posttest Design | 26 |
| Table 3.3 | Visual Communication Rubric | 27 |
| Table 3.4 | Analysis of Students’ Answers Combination in Three-Tier Test .. | 29 |
| Table 3.5 | Criteria of Normalized Gain | 33 |
| Table 4.1 | Students Activities in First Treatment | 36 |
| Table 4.2 | Students’ Activities in Second Treatment | 37 |
| Table 4.3 | Students’ Activities in Third Treatment | 37 |
| Table 4.4 | Student’s Activities in Fourth Meeting | 38 |
| Table 4.5 | Result of Normality Test | 39 |
| Table 4.6 | Result of Paired Samples t-Test | 39 |
| Table 4.7 | Student’s Score on Pretest and Posttest | 40 |
| Table 4.8 | N-gain Score of Each Cognitive Level | 41 |
| Table 4.9 | Average N-gain of Every Sub-Concept | 42 |
| Table 4.10 | Examples of Students’ Poster about Characteristics of Lights | 47 |
| Table 4.11 | Visual Communication Rubric | 49 |
| Table 4.12 | Number of Students Scored | 49 |

LIST OF FIGURES

| | | |
|-------------|--|-----|
| Figure 2.1 | Light travels in a straight line until its strikes a surface. The type of surface will determine how the light will continue | 14 |
| Figure 2.2 | Light is scattered and appear to reflect randomly when it hits a rough surface | 14 |
| Figure 2.3 | Light is reflected to an opposite angle to the angle it hits in smooth surface and reflect light uniformly | 14 |
| Figure 2.4 | Model of light's reflection | 15 |
| Figure 2.5 | Image formation in plane mirror | 16 |
| Figure 2.6 | Image formations in concave mirror | 17 |
| Figure 2.7 | Image formation in convex mirror | 18 |
| Figure 2.8 | Formation of Real Image by Converging Lens | 19 |
| Figure 2.9 | Formation of Virtual Image by Diverging Lens | 20 |
| Figure 2.10 | Structures of Human Eyes | 20 |
| Figure 3.1 | Flowchart of Research Procedure | 321 |
| Figure 4.1 | Average of Enhancement of Students' Conceptual Mastery on Lights and Optics Concept | 40 |
| Figure 4.2 | Decreasing of Students' Misconception | 43 |
| Figure 4.3 | Numbers of Students Who Understand | 44 |
| Figure 4.4 | Example of student's poster | 47 |
| Figure 4.5 | Example of student's poster | 47 |
| Figure 4.6 | Example of student's poster | 48 |
| Figure 4.7 | Example of student's poster | 48 |

LIST OF APPENDIX

| | | |
|------------------------------------|---|-----|
| Appendix 1.1 | <i>Rencana Pelaksanaan Pembelajaran (Lesson Plans)</i> | 58 |
| Appendix 1.2 | <i>Lembar Kerja Siswa Perlakuan I (Worksheet Treatment I)</i> | 80 |
| Appendix 1.3 | <i>Lembar Kerja Siswa Perlakuan II (Worksheet Treatment II)</i> | 86 |
| Appendix 1.4 | <i>Lembar Kerja Siswa Perlakuan III (Worksheet Treatment III)</i> ... | 93 |
| Appendix 1.5 | <i>Lembar Kerja Siswa Perlakuan IV (Worksheet Treatment IV)</i> ... | 100 |
| Appendix 2.1 | Multiple Choice Questions Instruments | 105 |
| Appendix 2.2 | Instrument Three Tier Test in Form of Evaluation Sheet | 122 |
| Appendix 2.3 | Instrument Judgment Forms | 135 |
| Appendix 2.4 | Observation Sheet | 139 |
| Appendix 2.5 | Result of Instrument Test | 147 |
| Appendix 3.1 | Students' Result of Three Tier Test | 149 |
| Appendix 3.2 | Students' Score | 162 |
| Appendix 3.3 | Score of Students on Characteristics of Lights Concept | 163 |
| Appendix 3.4 | Score of Students on Images Formed by Mirrors Concept | 164 |
| Appendix 3.5 | Score of Students on Images Formed by Lenses Concept | 165 |
| Appendix 3.6 | Score of Students on Optical Devices in Daily Life Concept | 166 |
| Appendix 3.7 | Score of Students on Cognitive Level 1 (C1) | 167 |
| Appendix 3.8 | Score of Students on Cognitive Level 2 (C2) | 168 |
| Appendix 3.9 | Score of Students on Cognitive Level 3 (C3) | 169 |
| Appendix 3.10 | Number of Students who Understand and Having Misconception | 170 |
| Appendix 4.1 | <i>Surat Keterangan Telah Melaksanakan Penelitian</i> | 172 |
| Appendix 4.2 | Documentation | 173 |
| Appendix 4.3 | Review Form | 174 |
| Appendix of Author's Autobiography | | |