## LIST OF CONTENT

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legalization Sheet</td>
<td>i</td>
</tr>
<tr>
<td>Biography</td>
<td>ii</td>
</tr>
<tr>
<td>Abstract</td>
<td>iii</td>
</tr>
<tr>
<td>Preface</td>
<td>iv</td>
</tr>
<tr>
<td>List of Content</td>
<td>v</td>
</tr>
<tr>
<td>List of Figure</td>
<td>viii</td>
</tr>
<tr>
<td>List of Table</td>
<td>ix</td>
</tr>
<tr>
<td>List of Appendix</td>
<td>x</td>
</tr>
</tbody>
</table>

### CHAPTER I INTRODUCTION

1. Research Background          1  
2. Problem Identification        1  
3. Problem Limitation            3  
4. Problem Formulation           4  
5. Research Objectives           4  
6. Research Benefits             4  
7. Operational Definition        5

### CHAPTER II LITERATURE REVIEW

1. Theoretical Framework         6  
2.1. Studying and Learning       6  
2.1.1. Studying and Learning Process Chemistry in high school 8  
2.1.2. Difficulties Students In Studying 10  
2.1.3. Cognitive Learning Difficulties 13  
2.2. Description of Study Material 14  
2.2.1. The changes of chemistry in chemical reaction 15  
2.2.2. Enthalpy and enthalpy changes 16  
2.2.3. The Equation of Thermochemistry 19
2.2.4. The Standard Enthalpy Change ($\Delta H^0$) 20
2.2.5. Calculation of $\Delta H$ Reaction 21
   2.2.5.1. Calculation $\Delta H$ Reaction Using Calorimetry 21
   2.2.5.2. Calculating $\Delta H$ Reaction Using Hess Law 22
   2.2.5.3. Calculating $\Delta H$ Reaction Using The Binding Energy 24
2.2.6. Heat of Combustion In Daily Life 25
2.3. Conceptual Framework 26
2.4. Hypothesis 26

CHAPTER III RESEARCH METHODOLOGY 27
3.1. Research Location and Time 27
3.2. Research Population and Sample 27
3.3. Types And Data Sources 27
3.4. Research Instruments 27
   3.4.1. Diagnostic test 28
   3.4.2. Questionnaire 29
3.5. Type and Design Research 30
3.6. Collecting Data Technique 31
3.7. Analysis Data Interpretation 32
3.8. Valuing Cognitive Capability 34

CHAPTER IV RESULT AND DISCUSSION 35
4.1. Research Result 35
4.2. Students Capability 35
4.3. Presentation of Data and Data Analysis 35
   4.3.1. Analysis of the difficultied students based on the scores obtained by students 35
   4.3.2. Analysis layout difficulty and types of errors students to each question 37
4.3.3. Identification of Causing Learning Difficulties Factor’s 43
4.3.4. Correlation Student Learning Difficulties with student 48
cognitive capability

4.4. Discussion and Research

BAB V CONCLUSION AND SUGGESTION

5.1. Conclusion

5.2. Suggestion

REFERENCES