TABLE OF CONTENTS

			Page		
Authe	nticatio	n Sheet	i		
Curric	ulum V	itae	ii		
Abstra	act		iii		
Prefac	e		iv		
Table	of conte	ents	vi		
List of	f Figure		ix		
List of	f Tables	Х			
List of	xi				
	CHAPTER I INTRODUCTION				
1.1		ackground of The Problems	1		
1.2	The Id	entification of The Problems	10		
1.3	The Li	mitations of The Problems	11		
1.4	The Fo	11			
1.5	The Pu	rposes of The Research	11		
1.6	The B	enefits of The Research	12		
1.7	The D	efinitions of Operational	12		
CHAI	PTER I	I REVIEW OF LITERATURE	13		
2.1	Theori	13			
	2.1.1	Communication	13		
	2.1.2	Communication in Learning	15		
	2.1.3	Mathematical Communication	17		
	2.1.4	Mathematical Communication Ability	21		
	2.1.5	Students' Attitude to Mathematical Learning	23		
	2.1.6	Cooperative Learning Model	25		

	2.1.7 Group Investigation Learning Model	29
	2.1.8 Learning Thoery Supporting GI model	34
	2.2 Relevant Studies	36
2.3	Conceptual Framework	38
2.4	Hypothesis Action	41
CHA	PTER III RESEARCH METODOLOGY	42
3.1	Type of Research	42
3.2	Location and Time of Research	42
	3.2.1 Location of Research	42
	3.2.2 Time of Research	42
3.3	Subject and Object of Research	42
	3.3.1 Subject of Research	42
	3.3.2 Object of Research	43
3.4	Design of Research	43
3.5	Procedures of Research	45
3.6	Data Resources	55
3.7	Research Instruments	55
3.8	Instrument Test Result	58
3.9	Scoring	59
3.10	Data Analysis Techniques	61
3.11	Indicator of Success	67
CHA	PTER IV RESEARCH RESULT AND DISCUSSION	68
4.1	The Result of Research	68
	4.1.1 The Result of Research in Cycle I	68
	4.1.1.1 Problem I	69

69

	4.1.1.3 Implementation Measures Phase I	70
	4.1.1.4 Observation and Evaluation Phase I	76
	4.1.1.5 Reflection Phase I	85
	4.1.2 The Result of Research in Cycle II	90
	4.1.2.1 Problem II	91
	4.1.2.2 Action Plane Phase II	91
	4.1.2.3 Implementation Measures Phase II	91
	4.1.2.4 Observation and Evaluation Phase II	97
	4.1.2.5 Reflection Phase II	111
4.2	Research Findings	117
4.3	Research Discussion	118
	4.3.1 Students' Mathematical Communication Ability	118
	4.3.2 Students' Attitude Toward The Mathematical Learning	119
4.4	Limitations of Research	121
CHAPTER V CONCLUSSION AND SUGGESTION		
5.1	Conclussion	122
5.2	Suggestion	123
DFF	FRENCES	125