

TABLE OF CONTENTS

APPROVAL SHEET	i
ORIGINAL STATEMENT	ii
PUBLICATION AGREEMENT	iii
ABSTRACT	iv
PREFACE.....	v
TABLE OF CONTENTS.....	vii
LIST OF FIGURES	ix
LIST OF TABLES	x
LIST OF APPENDIX	xi
CHAPTER I PRELIMINARY	1
1.1. Background	1
1.2. Identification of Problem.....	4
1.3. Scope of Problem	4
1.4. Problem Formulation.....	5
1.5. Research Objectives	5
1.6. Research Benefit.....	6
1.7. Operational Definition.....	6
CHAPTER II LITERATURE REVIEW	8
2.1 Research and Development (R&D).....	8
2.2 4D Development Models.....	9
2.3 Learning Media	11
2.3.1 Defenition of Learning Media.....	11
2.3.2 Function of Learning Media.....	12
2.3.3 Benefit of Learning Media	13
2.3.4 Type of Learning Media.....	14
2.4 Smart Apps Creator (SAC).....	14
2.5 Learning Interest.....	15
2.6 Atomic Structure and the Periodic System of the Elements.....	15
2.6.1 Atomic Compounding Particles	16
2.6.2 Atomic Number and Mass Number	18

2.6.3	Isotopes, Isobars, and Isotones.....	19
2.6.4	Atomic Model Development.....	19
2.6.5	Orbital Shape.....	24
2.6.6	Orbital Diagram	25
2.6.7	Electron Configuration.....	25
2.6.8	Writing Electron Configuration	27
2.6.9	Quantum Number.....	29
2.6.10	Development of the Periodic System of Elements.....	30
2.6.11	Location of the Elements in the Periodic System of the Elements .	35
2.6.12	Division of Elements in the Periodic System.....	36
2.6.13	Regularity of the Periodic Properties of the Elements.....	36
2.7	Framework of thinking.....	36
CHAPTER III RESEARCH METHODOLOGY		38
3.1	Type of research	38
3.2	Research procedure	38
3.3	Research Instruments	41
3.3.1	Questionnaire	41
3.3.2	Interview	44
3.4	Data collection technique	44
3.5	Data analysis.....	44
CHAPTER IV RESULT AND DISCUSSION.....		46
4.1	Result of Research.....	46
4.2	Discussion	58
CHAPTER V CONCLUSION		61
5.1	Conclusion.....	61
5.2	Sugestion	61
REFERENCES.....		63
APPENDIX		66