### 



22 sector strat

Service data University, Shepai in the field of the flegres of NESSTERCOR OFFICERED 2004-0010

Ħ

investigatos Vaisitali Claudalistas

and the second second for the contract of the management subsection the division of formation to the second formation of the second formation of the second formation of

Effectiveness of Computer Assisted Instruction (CAI) Package for Teaching Chemistry to Class IX Students in terms of Achievement in Chemistry



एन सीई आर टी NCÆRT

> Dissertation Submitted to

Barkatullah University, Bhopal in Partial Fulfillment for the Degree of MASTER OF EDUCATION 2009-2010

D-389

Supervisor Dr.N.C.Ojha Lecturer in Education Investigator Vaishali Chandrkar

Regional Institute of Education (National Council of Educational Research and Training) Shymla Hills, BHOPAL(M.P.)

### Declaration

I do here by that the dissertation entitled "Effectiveness of Computer Assisted Instruction (CAI) package for teaching Chemistry to class IX in terms of Achievement in Chemistry", has been carried out by me during the academic year 2009-2010 in partial fulfillment of the requirement for the Master Degree of Education (M.Ed.RIE) of Barkatullah University, Bhopal.

The study has been conducted under the guidance and supervision of **Dr.N.C.Ojha**, Lecturer in Education RIE, Bhopal.

I also declare that this dissertation has not been submitted before either by me or by any other for the award of any other degree or diploma in any University.

Ň

Place : Bhopal Date : 10th May 2010

Vaishali Chandrkar M.Ed. (RIE) Regional Institute of Education

(i)

( ii )

### Certificate

This is to certify that Miss.Vaishali Chandrkar, as student of M.Ed. (RIE), Bhopal in the year 2009-2010 has worked under my guidance. Her dissertation entitled "Effectiveness of Computer Assisted Instruction (CAI) package for teaching Chemistry to class IX in terms of Achievement in Chemistry", is original and worthy of presentation in partial fulfillment of degree of Master of Education (M.Ed.) from Barkatullah University, Bhopal (M.P.). The present study is an out come of her sincere efforts and dissertation is fit for submission.

Place : Bhopal Date : 10th May 2010

Supervisor

Dr.N.C.Ojha Lecturer in Education Regional Institute of Education

**(**)

### ( iii )

### Acknowledgement

I take this opportunity to express my gratitude to my supervisor Dr.N.C.Ojha, Lecturer in Education, RIE Bhopal who helped in execution of this study. I thank him for valuable advice, continuous help, inspiring guidance, encouragement and supervision in the completion of the study, I owe the gratitude and regards for his generosity.

I am indebted and express my gratitude to Principal Dr. B.Subramaniam ,Dr.M.N.Bapat Dean of Instruction, Dr.S.K.Gupta present HOD of the Department of Education, RIE Bhopal and all the staff members of the Department of Education, RIE Bhopal for providing a learning environment in the institute.

I am also grateful to Dr.U.L.Narayana, Reader in Education, present In charge of M.Ed. Department, RIE Bhopal whose constant advice and suggestions have always been a source of inspiration and determination.

# I am also grateful to library staff members for their help in providing me the necessary study materials. I express my heart felt thanks to principal, teachers, students of class IX of Bal Bhavan School, Bhopal for cooperation in conducting experiment in the school.

I am thankful to Sourabh Sir for guiding me in developing and implementing Computer Assisted Instruction (CAI) package.

I am also thankful to all classmates who remained as a source of inspiration to me at all time for completion of this work.

Above all I owe my sincere gratitude to my beloved parents, friends and my respected teacher who have been encouraging me in every walk of life through out the year.

Place : Bhopal Date : 12<sup>th</sup> May 2010 Vaishah

Vaishali Chandrkar M.Ed. (RIE) Bhopal

### TABLE OF CONTENTS

Declar Certifi Ackno Table List of List of Appen CHA	Page No. i ii iii & iv v x x xi 1-14	
1.1	Importance of Science	1
1.2	Importance of chemistry	1
1.3	Introduction of Chemistry: At Secondary level	2
1.4	Aims and Objectives of Teaching Chemistry	3
1.5	Methods of Teaching Chemistry	4
1.6	What is CAI?	6
1.7	Importance of CAI	6
1.8	Guidelines of NCF 2005	7
1.9	Use of CAI in Teaching Chemistry	7
1.10	Operational Definitions of Variables	9
1.14	Rationale of the study	11
1.12	Statement of the problem	12
1.13	Objectives of the study	12
1.14	Hypothesis of the Study	13
1.15	Delimitations of the study	14

(v)

CHAPTER-II:REVIEW OF RELATED LITERATURE 15-19			
2.1	Introduction	15	
2.2	Reviews of Related Literature	15	
2.3	Conclusion of Review of Related Literature	19	
СНА	PTER- III: METHODOLOGY	20-26	
3.1	Introduction	20	
3.2	Research design	20	
3.2.3	l Design of the study	20	
3.3	Sample	21	
3.4	Data Gathering Tools	22	
3.4.	1 Science Attitude Tool-Science Attitude Scale	23	
3.4.2	2 Study Habits Inventory	23	
3.4.	3 Constructing Achievement Test	23	
3.5	Development of Computer Assisted Instruction(CAI) pac	kage 24	
3.6	Data Gathering Procedure	24	
3.7	Statistical Techniques Used	25	

### CHAPTER-IV: ANALYSIS OF DATA AND INTERPRETATIONS 27-44

4.1	Introduction	27
4.2	Effectiveness of the Computer Assisted Instruction (CAI) pa	ckage 27
4.2.1	Effectiveness of the Computer Assisted Instruction (CAI) p terms of Achievement in Chemistry	ackage in 27

( vi )

## ( vii )

Effectiveness of the Computer Assisted Instruction package in terms of Reaction of the students towar	· /
package	29
Effect and Interaction of Treatment and Gender on Achie	
in Chemistry	31
Effect of Treatment on Achievement in Chemistry	32
Effect Gender on Achievement in Chemistry	33
Interaction of Treatment, Gender on Achievement in Chemistry	33
Effect and Interaction of Treatment, Gender on Attitude	~ ~
owards Science	35
Effect of Treatment on Attitude towards Science	36
Effect of Gender on Attitude towards Science	37
Interaction of Treatment and Gender on Attitude towards Scien	ce 37
Effect and Interaction of Treatment, Gender on Study Habits	39
Effect of Treatment on Study Habits	40
Effect of Gender on Study Habits	41
Interaction of Treatment and Gender on Study Habits	41
Findings	43-44
APTER-V: SUMMARY AND CONCLUSIONS	45-60
Introduction	45
Findings	45
Effectiveness of the Computer Assisted Instruction(CAI)	46
Effectiveness of the Computer Assisted Instruction (CAI) pac	kage in
terms of Achievement in Chemistry	47
	package in terms of Reaction of the students towar package Effect and Interaction of Treatment and Gender on Achie in Chemistry Effect of Treatment on Achievement in Chemistry Effect Gender on Achievement in Chemistry Interaction of Treatment, Gender on Achievement in Chemistry Effect and Interaction of Treatment, Gender on Attitude owards Science Effect of Treatment on Attitude towards Science Effect of Gender on Attitude towards Science Interaction of Treatment and Gender on Attitude towards Science Effect of Treatment on Study Habits Effect of Gender on Study Habits Effect of Gender on Study Habits Interaction of Treatment and Gender on Study Habits Effect of Gender on Study Habits Interaction of Treatment and Gender on Study Habits Effect of Gender on Study Habits Interaction of Treatment and Gender on Study Habits Findings Introduction Findings Effectiveness of the Computer Assisted Instruction(CAI) Effectiveness of the Computer Assisted Instruction (CAI) pac

•

### (viii)

.

5.2.3	Effectiveness of the Computer Assisted Instruction (CAI) pac terms of Reaction of the students towards the Package	kage in 48			
	Effect and Interaction of Treatment and Gender on Achiever Chemistry	ment in 48			
5.3.1	Effect of Treatment on Achievement in Chemistry	48			
5.3.2	Effect Gender on Achievement in Chemistry	49			
5.3.3	3 Interaction of Treatment, Gender on Achievement in Chemistry				
		50			
5.4	Effect and Interaction of Treatment, Gender on Attitude t Science	towards 51			
5.4.1	Effect of Treatment on Attitude towards Science	51			
5.4.2	Effect of Gender on Attitude towards Science	52			
5.4.3	Interaction of Treatment and Gender on Attitude towards Science 52				
5.5	Effect and Interaction of Treatment, Gender on Study habits	52			
5.5.1	Effect of Treatment on Study habits	52			
5.5.2	Effect of Gender on Study Habits	53			
5.5.3	Interaction of Treatment and Gender on Study habits	53			
5.6	Summary	53			
5.6.1	Rationale of the study	53			
5.6.2	Statement of the problem	54			
5.6.3	Defining the Key terms	54			
5.6.4	Objectives of the study	54			
5.6.5	Hypotheses	55			
5.6.6	Methodology	56			
5.6.7	Sample	56			
5.6.8	Design of the study	56			

٠

### ( ix )

5.6.9	Tools	56
5.6.10	Data Gathering Procedure	56
5.6.11	Statistics techniques used	57
5.6.12	Findings	58
5.6.13	Delimitations	59
5.6.14	Educational Implications	. 59
5.6.15	Conclusion	60
5.6.16	Suggestions for further study	60

### BIBLIOGRAPHY

### 61-62

•

### APPENDICES

- Appendix A: Science Attitude Scale
- Appendix B: Study Habits Inventory

.

Appendix C: Achievement in Chemistry

### (x)

• •

٠

### List of Tables

٠

Table	1.1: Variables of the study	10
Table	3.1: Group-wise and Gender-wise Distribution of Sample	22
Table	3.2: Details of the Items in Achievement Test	24
Table	3.3: Schematic Representation of the study	26
Table	4.1: Percentiles, Mean, and Standard D for Achievement in Chemistry	eviation 28
Table	4.2: Statement-wise Responses of the Students in Percentages)	s (given 30
Table	4.3 F-values for Effect ant Interaction of Tr and Gender on Achievement in Chemistry	
Table	4.4: Mean and SD of the Boys and G Experimental and Control Groups for Achievement in Chemistry	
Table	4.5: F-values for Effect ant Interaction of Tr	-
Table	4.6: Mean and SD of the Boys and C Experimental and Control Groups for towards Science	
Table	4.7: F-values for Effect ant Interaction of Tr and Gender on Study Habits	reatment 39
Table	4.8: Mean and SD of the Boys and C Experimental and Control Groups for Habits	



### List of Figures

Fig.	4.1:	Interaction for finite for the first for the second	or Treatme	nt and	Gender	on Ac	hievem 34	ent
Fig.	4.2:	Mean Achiev	ement in	Chemistry	of B	oys and	Girls	of
		Experimental (	Group				34	
Fig.	4.3:	Mean Achiev	ement in (	Chemistry	of B	oys and	Girls	of
		Control Group					35	
Fig.	4.4:	Interaction for	r Treatment	and Gen	der on	Attitude	towa	rds
		Science					38	
Fig.	4.5:	Mean Attitud	le towards	Science	of Be	oys and	Girls	of
		Experimental (	Broup				38	
Fig.	4.6:	Mean Attitud	le towards	Science	of Be	oys and	Girls	of
-		Control Group					38	
Fig. 4.7: Interaction for Treatment and Gender on Study Habits 42								
						_		~
Fig. 4	.8:	Mean Stud	•	of	Boys	and	Girls	of
		Experimental	Group				42	
ידי <i>ו</i>			1 <b>111</b> 1,	0	n	1	<u><u> </u></u>	
F1g. 4	.9:		ly Habits	of of	воуs	and	Girls	of
		Control Group					43	

( xi )