

**EFFECTIVENESS OF E-CONTENT FOR TEACHING
BIOLOGY TO CLASS IX IN TERMS OF
ACHIEVEMENT IN SCIENCE AND ATTITUDE
TOWARDS SCIENCE**

A

DISSERTATION

Submitted to

BARKATULLAH UNIVERSITY, BHOPAL (M.P.)

For the partial fulfillment of

THREE YEAR INTEGRATED B.ED-M.ED

SESSION 2019-2022

SUPERVISOR

DR. NITAI CHARAN OJHA
ASSOCIATE PROFESSOR
DE, RIE, NCERT, BHOPAL

INVESTIGATOR

MR. AGRAH SUBASH PRADHAN
STUDENT, ROLL NO- 200660401
DE, RIE, NCERT, BHOPAL



D- 724

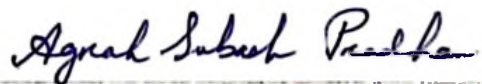


**DEPARTMENT OF EDUCATION
REGIONAL INSTITUTE OF EDUCATION
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING
SHYAMLA HILLS, BHOPAL (M.P.)**

DECLARATION

I hereby declare the dissertation entitled **"EFFECTIVENESS OF E-CONTENT FOR TEACHING BIOLOGY TO CLASS IX IN TERMS OF ACHIEVEMENT IN SCIENCE AND ATTITUDE TOWARDS SCIENCE"** for the partial fulfillment of Integrated B.Ed.M.Ed degree, to be my own effort under the supervision of Associate Professor Nitai Charan Ojha, Department of Education, Regional Institute of Education, National Council of Educational Research and Training, Bhopal(M.P.).

I further declare that the dissertation is original and contains appropriate citations.



Date 07.07.2022

MR. AGRAH SUBASH PRADHAN
STUDENT, DEPARTMENT OF EDUCATION,
REGIONAL INSTITUTE OF EDUCATION, NCERT, BHOPAL

CERTIFICATE

This is to certify that the research work entitled “**EFFECTIVENESS OF E-CONTENT FOR TEACHING BIOLOGY TO CLASS IX IN TERMS OF ACHIEVEMENT IN SCIENCE AND ATTITUDE TOWARDS SCIENCE**” has been successfully completed by Mr. Agrah Subash Pradhan for the partial fulfillment of the Integrated B.Ed-M.Ed degree in Regional Institute of Education, Bhopal (M.P.) under my supervision for the session 2019-2022.

To the best of my knowledge, the dissertation embodies the original work of the candidate himself.

Date 06 . 07. 2022



DR. NITAI CHARAN OJHA

**SUPERVISOR, ASSOCIATE PROFESSOR, DEPARTMENT OF EDUCATION,
REGIONAL INSTITUTE OF EDUCATION, NCERT, BHOPAL**

ACKNOWLEDGEMENT

I am highly indebted to Dr. Nitai Charan Ojha, Supervisor, Associate Professor, Department of Education, Regional Institute of Education, National Council of Educational Research and Training, Shyamla Hills, Bhopal, Madhya Pradesh, whose guidance significantly helped me in carrying out this detailed experimental research. I also express my deep appreciation to all respondents who participated in this study, subject teachers, experts, heads, principals and all whose direct and indirect support helped me complete this educational research.

Thank You

MR. AGRAH SUBASH PRADHAN

**STUDENT, DEPARTMENT OF EDUCATION,
REGIONAL INSTITUTE OF EDUCATION, NCERT, BHOPAL.**

ABSTRACT

The quantitative experimental study here analyzes pre and post test scores in attitude towards science and achievements in science regarding biological science e-contents of two groups of class IX learners from two Kendriya Vidyalayas of Angul district of Odisha. KV no 1 denotes the Control group, while KV no 2 denotes the experimental group. Results appear to indicate that e-contents are an effective instructional strategy for improving and retaining achievement in and attitudes towards science, of experimental respondents within the duration of the study. This is due to the biological science e-content mediated program which met the experimental group's needs and interests.

Keywords

IX - Class Nine, KV - Kendriya Vidyalaya. E-contents - Electronic contents

CONTENTS

CHAPTER	TITLE		PAGE
I	INTRODUCTION		1
	1.0.0	BACKGROUND OF THE STUDY	1
	1.1.0	SIGNIFICANCE OF THE STUDY	3
	1.2.0	STATEMENT OF THE PROBLEM	4
	1.3.0	OPERATIONAL DEFINITIONS OF KEY TERMS	4
	1.4.0	OBJECTIVE OF THE STUDY	5
	1.5.0	HYPOTHESIS OF THE STUDY	5
	1.6.0	DELIMITATIONS OF THE STUDY	5
	1.7.0	CHAPTERIZATION OF THE STUDY	6
II	REVIEW OF RELATED LITERATURE		8
	2.0.0	INTRODUCTION	8
	2.1.0	IMPORTANCE OF REVIEW OF LITERATURE	9
	2.2.0	REVIEW OF LITERATURE	9
	2.3.0	CONSTRUCTION OF E-CONTENTS IN BIOLOGY	11
	2.4.0	CONSIDERATIONS FOR ATTITUDE TOWARDS SCIENCE	12
	2.5.0	CONSIDERATIONS OF ACHIEVEMENT TOWARDS SCIENCE	13
	2.6.0	RELATIONSHIP BETWEEN ATTITUDE TOWARDS AND ACHIEVEMENTS IN SCIENCE	14
	2.7.0	SUMMARY OF REVIEW OF LITERATURE	15
	2.8.0	RESEARCH GAP	16
	2.9.0	RATIONALE OF THE STUDY	16
III	RESEARCH METHODOLOGY		17
	3.0.0	INTRODUCTION	18
	3.1.0	RESEARCH METHODOLOGY	18
	3.2.0	VARIABLES OF THE STUDY	20

	3.3.0	POPULATION	20
	3.4.0	SAMPLE	20
	3.5.0	SAMPLE SELECTION	20
	3.6.0	RESEARCH TOOLS USED	21
	3.6.1.0	PERSONAL DATA SHEET	21
	3.6.2.0	E-CONTENTS	21
	3.6.3.0	PRE & POST TEST ATTITUDE	21
	3.6.4.0	PRE & POST TEST ACHIEVEMENT	21
	3.7.0	DEVELOPMENT OF E-CONTENTS	21
	3.8.0	QUESTIONNAIRE	22
	3.9.0	PROCEDURE OF DATA COLLECTION	23
	3.9.1.0	PRE LECTURE	23
	3.9.2.0	DURING LECTURE	23
	3.9.3.0	POST LECTURE	23
	3.10.0	DESCRIPTIVE AND INFERENTIAL STATISTICS USED	24
IV		DATA ANALYSIS, INTERPRETATION AND DISCUSSION	25
	4.0.0	INTRODUCTION	26
	4.0.1.0	CONTROL GROUP	26
	4.0.2.0	EXPERIMENTAL GROUP	27
	4.1.0	ANALYSIS OF DATA	28
	4.1.1.0	GENDER DISTRIBUTION IN THE SAMPLE	28
	4.1.1.1	CONTROL GROUP	28
	4.1.1.2	EXPERIMENTAL GROUP	28
	4.1.2.0	PRE ATTITUDE TEST G1 (CONTROL GROUP)	29
	4.1.3.0	POST ATTITUDE TEST G1 (CONTROL GROUP)	30
	4.1.4.0	PRE ACHIEVEMENT TEST G1 (CONTROL GROUP)	31
	4.1.5.0	POST ACHIEVEMENT TEST G1 (CONTROL GROUP)	32
	4.1.6.0	PRE ATTITUDE TEST G2 (EXPERIMENTAL GROUP)	33

		4.1.7.0	POST ATTITUDE TEST G2 (EXPERIMENTAL GROUP)	34
		4.1.8.0	PRE ACHIEVEMENT TEST G2 (EXPERIMENTAL Gr.)	35
		4.1.9.0	POST ACHIEVEMENT TEST G2 (EXPERIMENTAL Gr.)	36
		4.1.10.0	DESCRIPTIVE STATISTICS MEDIATED ANALYSIS OF CONTROL & EXPERIMENTAL GROUP SCORES	37
		4.1.11.0	ANALYSIS OF TWO TAILED T-TEST RESULTS	39
	4.2.0	INTERPRETATION OF RESULTS		40
	4.3.0	DISCUSSIONS		40
V	FINDINGS, CONCLUSIONS, IMPLICATIONS & SUGGESTIONS			41
	5.0.0	INTRODUCTION		42
	5.1.0	FINDINGS		42
		5.1.1.0	ATTITUDE TOWARDS SCIENCE	42
		5.1.2.0	ACHIEVEMENTS IN SCIENCE	43
	5.2.0	CONCLUSION		43
	5.3.0	EDUCATIONAL IMPLICATIONS		43
	5.4.0	SUGGESTIONS FOR FURTHER RESEARCH		44
	BIBLIOGRAPHY			
	APPENDIX			
		E CONTENT MODULES		
		PERSONAL DATA SHEET FOR RESPONDENTS		
		PRE AND POST ATTITUDE SCALE		
		PRE AND POST ACHIEVEMENT TEST QUESTIONNAIRE		

TABLE OF CONTENTS OF FIGURES

NUMBER	FIGURE DESCRIPTION	PAGE
1	MAP OF ANGUL, ODISHA, INDIA	20
2	FREQUENCY (GROUP 1) PRE ATTITUDE TESTS	29
3	FREQUENCY (GROUP 1) POST ATTITUDE TESTS	30
4	FREQUENCY (GROUP 1) PRE ACHIEVEMENT TESTS	31
5	FREQUENCY (GROUP 1) POST ACHIEVEMENT TESTS	32
6	FREQUENCY (GROUP 2) PRE ATTITUDE TESTS	33
7	FREQUENCY (GROUP 2) POST ATTITUDE TESTS	34
8	FREQUENCY (GROUP 2) PRE ACHIEVEMENT TESTS	35
9	FREQUENCY (GROUP 2) POST ACHIEVEMENT TESTS	36

TABLE OF CONTENTS OF TABLES

NUMBER	TITLE	PAGE
1	GENDER IN CONTROL GROUP	28
2	GENDER IN EXPERIMENTAL GROUP	28
3	PRE ATTITUDE FREQUENCY - G1	29
4	POST ATTITUDE FREQUENCY - G1	30
5	PRE ACHIEVEMENT FREQUENCY - G1	31
6	POST ACHIEVEMENT FREQUENCY - G1	32
7	PRE ATTITUDE FREQUENCY - G2	33
8	POST ATTITUDE FREQUENCY - G2	34
9	PRE ACHIEVEMENT FREQUENCY - G2	35
10	POST ACHIEVEMENT FREQUENCY - G2	36
11	DESCRIPTIVE STATISTICS OF ALL SURVEYS	37
12	DESCRIPTIVE STATISTICS OF PRE & POST TESTS	38
13	PAIRED SAMPLE STATISTICS	39
14	PAIRED SAMPLE CORRELATION	39
15	PAIRED SAMPLE T-TEST	39