



## Impact of ICT on teaching-learning at classroom situation for school level achievement of rural school in North Bengal: A Comparative Study

### EDUCATION

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### ABSTRACT

The present study was conducted to provide some opinion and comparison about the achievement at secondary level in North Bengal, West Bengal. Data was collected of 400 students from eight higher secondary schools from North Bengal, by randomly. The results revealed that 1) experimental male and control male students differ significantly in their physical science class test at IX level, 2) experimental female & control female students differ significantly in their physical science class test at IX level,

### KEYWORDS:

Achievement Difference, opinion difference, IX level test, 't'- test, result of unit test of physical science of IX level, experimental group and control group

### Introduction

Academic achievement of rural students in our West Bengal is very poor with respect to urban students mainly in case of science subject. Maximum students of rural area achieve secondary examination having poor marks in science subjects. Because of some specific causes like, lack of actual science teachers, inferior structure, families' background of the learners, lack of use of teaching aids or model and also lack of use of modern technology etc.

Now it is the actual time to use ICT for the mass education [1]. Due to globalization and internationalization of education system, we are trying to represent us in the world competition regarding every respect of life, so at first we need quality and mass education. It is only possible if we accept to modern ICT [2] and provide quality of teacher to all over the country along with inferior structure to implement the modern ICT. But in our country we saw there are huge gap in infrastructure and trained teacher to use ICT properly specially in the rural area. There are various types of ICT which are providing by the Government/NGO or many private organization but the institute are not able to use due to same problems as stated [3-8].

### Objectives of the Study:

The main objective of the study is to find out if there is any relationship with achievement and the teaching technique, infrastructure, communication language, and teachers.

### Minor Objectives:

This study will be conducted with a view to satisfy following objectives;

- I. To find out the rate of achievement of the experimental group in physical science at the IX level unit test examination in selected schools.
- II. To find out the rate of achievement of the control group in physical science at the IX level unit test examination in selected schools.
- III. To compare the achievement of experimental group with respect to control group in physical science at the IX level unit test examination in the selected school at North Bengal.
- IV. To compare the opinion of students regarding achievement difference of the experimental students in physical science with respect to control students in physical science at the IX level unit test examination in selected school at North Bengal.
- V. To identify the probable causes the achievement difference at the IX level stage between experimental and control students in physical science at North Bengal.

### Null Hypotheses:

H01. There is no opinion difference between experimental group and control group significantly in physical science subject at class level unit test examination.

H02. There is no opinion difference between experimental boys group and control boys group in physical science significantly at unit test examination of the selected school.

H03. There is no opinion difference between experimental girls group and control girls group in physical science significantly at class level

unit test examination of the selected school.

H04. There is no opinion difference between experimental boys group and control girls group in physical science significantly at class level unit test examination of the selected school.

H05. There is no opinion difference between experimental girls group and control boys group in physical science significantly at class level unit test examination of the selected school

### SCOPE AND DELIMITATION:

To make the study intensive it was delimited in the following areas.

(ASSUMING OTHER ALL VARIABLE REMAIN CONSTANT FOR BOTH THE GROUP)

- i. **School:** All the Secondary and Higher Secondary School could be included in the study. But considering the facilities and time span, four Boy's High School (Rural) and four Girls High School (Rural) were taken for the study. The author divided two groups of students randomly (one group for experimental and other for controlled from the class IX of each school assuming the other entire variable remain same) for his observation.

Sl No.	Name of the School	Boys High School		Girls High School	
		Experimental (From 1st 70 student of Class IX)	Controlled (From 1st 70 student of Class IX)	Experimental (From 1st 70 student of Class IX)	Controlled (From 1st 70 student of Class IX)
1	Iswarchandra Vivyasagar High School(HS)	25	25		
2	Sahudangi Hat P.K. Roy high School(HS)	25	25		
3	Odlabari High School	25	25		
4	Khopalasi Hindi High School	25	25		
5	Srikrishnapur High School for girls(HS)			25	25
6	Lakhipur Girls High School(HS)			25	25
7	Shirshi I.M. Sr. Madrasah for Girls'			25	25

8	Baradighi Girls' High School			25	25
	Total	100	100	100	100

- ii. **Area:** This type of study could be conducted in any district of West Bengal, However considering the availability of data and cooperation from the schools in view; North Bengal was selected as the study area.
- iii. **Subject:** This type of study could be conducted with any subject from any level. But initially it was decided that the study would be conducted in physical science at IX level between Experimental and control students.

**SAMPLING:** True experimental designs are used. Control of extraneous variables with the help of random assignment of subjects in experimental group and control group, manipulation experimental variables and observation of events with the help of administration of test and quantification of data along with replication of the study in a number of cases within the framework of experimental design. The random sampling procedure was adopted for selection of sample from the list of Secondary schools in North Bengal. Eight rural Secondary schools (four Boys school and four Girls school) were selected randomly.

**ICT Used for the Experimental Groups:** During the teaching-learning process the teachers offer to the experimental group for proper understanding the subject matters through LCD Projector, Laptop, smart phone for internet, Camera, 3D Model, Chart etc. at the same time normal teaching process was done to the control groups

**TECHNIQUE OF EXPERIMENT:** We have supplied all the ICT as required for the particular experimental unit of class IX level of difference school under my supervision. We have taken the unit "Newtons Laws of Motion." For all school and all students (Experimental and Controlled Groups). At end the unit rest was arranged by the observer for all students (Experimental and Controlled Groups).

The observation has conducted by IGNOU ODL B.ED. Trainee's under the supervision of the author (as a Programme-in-Charge, Study Centre (45009P), Siliguri B.Ed. College) in the year 2014-2016 sessions.

**DATA BASE:** The data was collected through the following manners:

- i. Name of the Student
- ii. Marks in the subject of physical science for last examination.
- iii. Total Marks in the Class test of the selected unit "Newtons Laws of Motion."
- iii. Percentage of Marks in the Class test of the selected unit "Newtons Laws of Motion."
- iv. Opinion of the students from structure questionnaire.

**ANALYSIS OF DATA PERTAINING TO OBJECTIVE-1**

- I. (To find out the rate of achievement of the experimental group in physical science at the IX level unit test examination in the selected schools)

**Table -1** the table is showing the rate of achievement of the experimental group students' in physical science at IX level unit test Examination.

School		Above 80%	75%-79%	60%-74%	50%-59%	Below 50%
Total Students ( Boys) 100	Number	04	19	24	42	11
Total Students ( Girls) 100	Number	01	26	29	35	09

**ANALYSIS OF DATA PERTAINING TO OBJECTIVE-2**

(To find out the rate of achievement of the control group students in physical science at the IX level unit test examination in the selected schools).

**Table -2** the table is showing the rate of achievement of the control group students' in physical science at IX level unit test Examination.

School		Above 80%	75%-79%	60%-74%	50%-59%	Below 50%
Total Students (Boys) 100	Number	00	02	8	19	71

Total Students (Girls) 100	Number	00	06	13	17	64
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**ANALYSIS OF DATA PERTAINING TO OBJECTIVE-3**

(To compare the achievement of experimental group with respect to control group in physical science at the IX level unit test examination in the selected school at North Bengal.)

**Interpretation:** From the tables (1 and 2) it is clear that at the unit test level of achievements there was a huge gap in percentage of the students. From table 1 more than 60% students achieved with more than 50% marks at unit test level but in the table 2 more than 60% students achieved with less than 50% marks at unit test level. So conclusion can be made that experimental group performed with more than 60% marks at unit test level but control group performed with less than 50% marks at unit test level.

**Hypothesis No - 1:** H01. There is no opinion difference between experimental group and control group significantly in physical science subject at class level unit test examination

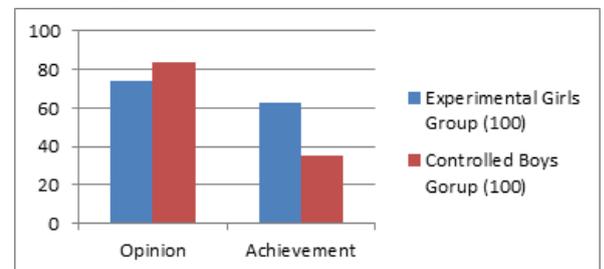
**Table: 3** Opinion difference between Experimental & Controlled groups Students in the unit test at IX level physical science.

Category	No. of students	Mean	SD	df	t	Remarks
Experimental groups	200	78.1	8.74	398	6.84	NS
Controlled groups	200	81.76	10.33			

0.01 level: t-2.58

0.05 level: t-1.96

**Interpretation:** above Table 3 shows that the Mean 78.1 & 81.76, SD 8.74 & 10.33 and calculated't' value is 6.84 between experimental and controlled group of students on the basis of responses of causes of failure at class level unit test examination. Our calculated't' value is greater than table value at 0.01 level and 0.05 level (df 398, 0.01 level 2.58 and 0.05 level 1.96). Thus, it is evident that there is significant opinion difference between experimental and controlled group of students' responses of causes of failure at class level unit test examination [9-12].

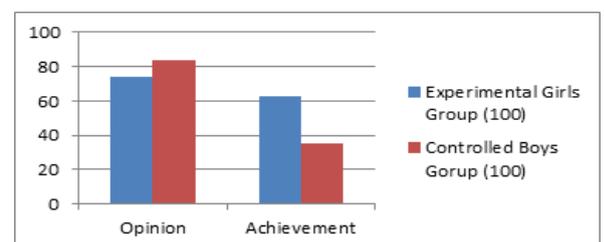


**Hypothesis No-2:H<sub>02</sub>.** There is no opinion difference between experimental boys group and control boys group in physical science significantly at unit test examination of the selected school.

**Table: 4** Opinion difference between Experimental & Controlled boys groups Students in the unit test at IX level physical science.

Category	No. of students	Mean	SD	df	t	Remarks
Experimental boys	100	82.4	11.25	198	4.35	NS
Controlled boys	100	83.9	9.93			

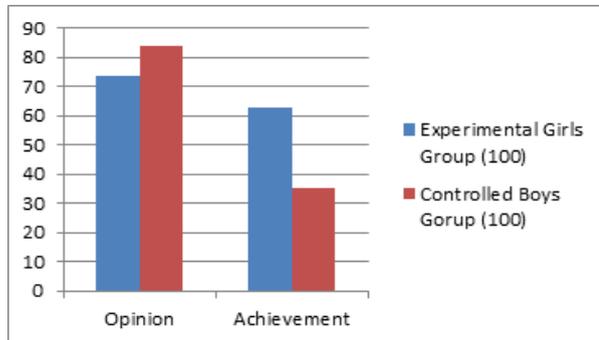
**Interpretation:** above Table 4 shows that the Mean 82.4 & 83.9, SD 11.25 & 9.93 and calculated't' value is 4.35 between experimental and controlled rural boys' on the basis of responses of causes of failure at class level unit test examination. Our calculated't' value is greater than table value at 0.01 level and 0.05 level (df 198, 0.01 level 2.58 and 0.05 level 1.96). Thus, it is evident that there is significant opinion difference between experimental boys group and controlled boys 'group responses of causes of failure at class level unit test examination.



**Hypothesis No 3:** H<sub>0</sub>. There is no opinion difference between experimental girls group and control girls group in physical science significantly at class level unit test examination of the selected school.

**Table: 5** Opinion difference between Experimental & controlled rural girls' (Causes of failure at unit test)

Interpretation: above Table -5 shows that the Mean 73.8 & 79.62, SD 7.8 & 9.6 and calculated 't' value is 6.54 between experimental girls and controlled girls' group of students on the basis of responses of causes of failure at class level unit test examination. Our calculated 't' value is greater than table value at 0.01 level and 0.05 level (df 198, 0.01 level 2.58 and 0.05 level 1.96). Thus, it is evident that there is significant opinion difference between experimental girls and controlled girls' group of students' responses of causes of failure at class level unit test examination.

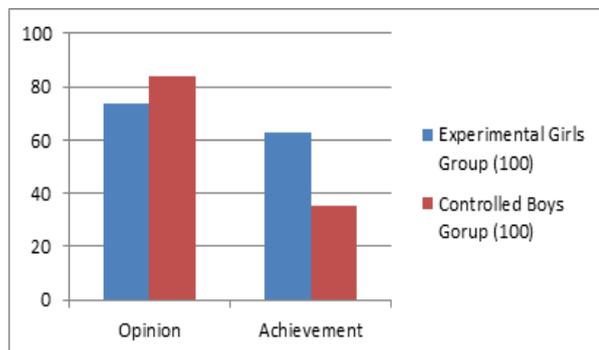


**Hypothesis No 4:** H<sub>0</sub>. There is no opinion difference between experimental boys group and control girls group in physical science significantly at class level unit test examination of the selected school.

**Table: 6** Opinion difference between Experimental boys & controlled girls' (Causes of failure at unit test)

Category	No. of students	Mean	SD	df	t	Remarks
Experimental boys	100	82.4	6.7	198	5.12	NS
Controlled girls	100	79.62	7.9			

Interpretation: above Table -5 shows that the Mean 82.4 & 79.62, SD 6.7 & 7.9 and calculated 't' value is 5.12 between experimental boys and controlled girls' group of students on the basis of responses of causes of failure at class level unit test examination. Our calculated 't' value is greater than table value at 0.01 level and 0.05 level (df 198, 0.01 level 2.58 and 0.05 level 1.96). Thus, it is evident that there is significant opinion difference between experimental boys and controlled girls' group of students' responses of causes of failure at class level unit test examination.



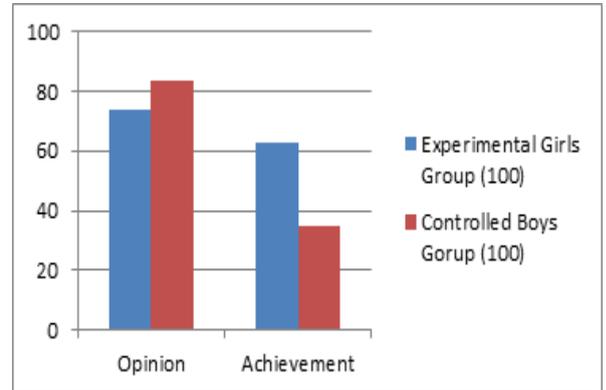
**Hypothesis No 5:** H<sub>0</sub>. There is no opinion difference between experimental girls group and control boys group in physical science significantly at class level unit test examination of the selected school.

**Table: 7** Opinion difference between Experimental girls & controlled boys' (Causes of failure at unit test)

Category	No. of students	Mean	SD	df	t	Remarks
Experimental girls	100	73.8	8.5	198	6.15	NS
Controlled boys	100	83.9	10.3			

Interpretation: above Table -5 shows that the Mean 73.8 & 83.9, SD 8.5 & 10.3 and calculated 't' value is 6.15 between experimental girls

and controlled boys' group of students on the basis of responses of causes of failure at class level unit test examination. Our calculated 't' value is greater than table value at 0.01 level and 0.05 level (df 198, 0.01 level 2.58 and 0.05 level 1.96). Thus, it is evident that there is significant opinion difference between experimental girls and controlled boys group of students' responses of causes of failure at class level unit test examination.



**ANALYSIS OF DATA OBTAINED FROM THE OPINION OF THE STUDENTS.**

The relative important of the causes of achievement difference at class level unit Examination on the basis of student's opinion.

Total thirty-two (32) causes are identified by the investigator to estimate the relative importance the causes for the different achievement at the Secondary level. 3-point rating scale was used to transform the qualitative opinion into quantitative scores.

Therefore the following trend was accepted;

- i) Maximum score = 32 x 3 = 96
- ii) Minimum score = 32 x 1 = 32
- iii) Average score = 32 x 2 = 64

It was decided that if the summated rating score exceeds 64 then it will be expected that the opinion of the individual tend to the favorableness of the causes.

**Table-8**

The table showing the average score of the student's opinion on summated rating.

Category	Number	Mean of each Category	Mean from all Category
Experimental Boys'	100	82.4	79.93
Experimental Girls'	100	73.8	
Controlled Boys'	100	83.9	
Controlled Girls	100	79.62	

**Interpretation:** The average scores exceed the cutting point score. Therefore the students viewed that the problems identified and presented in the questionnaire are responsible for different achievement at secondary level in west Bengal.

Both of the students' (controlled and experimental) have identified the following causes for the achievement different at Secondary level in West Bengal.

**Table-9**

Item no.	Causes
1	Lack of laboratory in most of the schools at secondary level.
2	Science is given less importance at secondary level
5	No chart or model used by the teachers during the teaching learning process.
9	No specimen or sample used by the teacher during teaching-learning process
11	Lack of infrastructure in most of the schools for teaching science lessons.
27	Ordinary standard text books used for teaching in classes
29	More priority given to memorizing subject without understanding it.

**FINDINGS OF THE PRESENT STUDY**

Following are the findings of the present investigation:

- There is significant difference between experimental and

- controlled students' responses for causes of failure at class level unit test examination.
- There is significant difference between experimental boys and controlled boys students' responses for causes of failure at class level unit test examination.
  - There is significant difference between experimental girls and controlled girls students' responses for causes of failure at class level unit test examination.
  - There is significant difference between experimental boys and controlled girls students' responses for causes of failure at class level unit test examination.
  - There is significant difference between experimental girls and controlled boys students' responses for causes of failure at class level unit test examination

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