



EFFECTIVENESS OF BLENDED LEARNING PROGRAMME ON STUDENTS' GENDER IN THE SUBJECT OF CHEMISTRY

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ABSTRACT :

Science is very important to prepare and provide proper learning materials to student's and to actively them in learning process.chemistry is the one of this part of science.Here as an alternative to traditional learning there is blended learning design integrated with higher order thinking skills (HOTs) is useful.

Active engagement with course material is vital for learning.This is based on research that demonstrates how learning is not only more likely to occur but is more enriched (qualitatively better) when students go beyond the passive tasks of listening,reading or viewing.Active engagement can be facilitated through individual as well as collaborative activity as shown in above figure.

In the present scenario,the whole education system is only exam oriented for student's and teacher's. Student's are not only receiver,that teacher throws and they catch.

According to bloom's taxonomy ...Lower to Higher-order thought and skill

Remembering

→Understanding

→Applying→Analysing→Evaluating→Creating

“Learning is always blended”this concept means the use of technologies in learning through the integration of online and face to face modes.One of the major reasons of this approach gaining momentum is due to teachers and instructors not using online learning to completely replace traditional face to face classroom teaching,but to complement or overcome some of the short comings of face to face teaching.

IMPORTANCE OF THE STUDY :

In the present scenario the whole education system is only exam oriented for student's and teacher's.student are only receiver,that teacher throws and they catch.so , blended learning programme will helpfull for student's and teacher's.

Importance of the study as follows.

- 1)Student's should not get only information,they should have their own thinking,their own views about everything.For that blended learning programme positive.
- 2) With the help of this study, the effectiveness of blended learning programme in classroom and student's thinking will be known.
- 3) This will helpfull to the student's in learning chemistry with blended learning

programme.

4) Blended learning programme will be helpful to the student's to improve or increase their higher order thinking.

5) Researcher will provide suggestions regarding how to create and sustain classroom learning environment which will be helpful to the student's and teachers.

STATEMENT OF THE STUDY :

The title of the present study is as given below.

“ Effectiveness of Blended Learning Programme on Students' Gender in the Subject of Chemistry”

In this study investigator developed a blended learning programme with respect to higher order thinking for selected units of chemistry at class IX student's. Evaluation tools is also developed by investigator and academic achievement with respect to higher order thinking is measured and compared with the control group. By this effectiveness of blended learning programme was checked.

OBJECTIVE OF THE STUDY :

For the present study the researcher decided following were the objectives.

1) To compare effectiveness of teaching through blended learning programme in relation to students' gender.

VARIABLES OF THE STUDY :

Variables are the conditions or characteristics that the experimenter manipulates, controls or observes. In the present study researcher will be used as following variables.

1) Independent Variables :-

- Teaching method-1) Blended learning programme
2) Traditional learning

2) Dependent Variables:-1) Girls

2) Boys

3) Control Variables:-1) Subject-Chemistry

- 2) Standard-Class-IX
3) Units-4 (sem-1) Properties of Matter
4) Medium-Gujarati

HYPOTHESIS OF THE STUDY :

Hypothesis is the presumptive statement of a proposition or a reasonable guess, based upon the available evidence, which the researcher seeks to prove through his study. Hypothesis is the whole part of the study. Hypothesis direct right direction of the study. So, researcher will be applying hypothesis related to the subject of chemistry for class-IX students.

In the present study, the researcher will construct the following hypothesis keeping the objectives of the study in mind.

H₀₁ There will be no significant difference between mean score of achievement on girls and boys in experimental group.

RESEARCH TYPE, METHOD AND FIELD:

Research Type:

In the present study, the data in terms of the scores of the post-tests collected and analysed. The result of the study found out with the help of the proper statistical techniques. So, the researcher will use **Quantitative type** of the research.

Research Method:

When the researcher wants to observe the effect of independent variables on dependent variables within certain controlled situations, the experiment method is preferred. So, in the present study, the researcher will use **Experimental method** of the research.

Research Field:

In the present study, the researcher constructed the blended learning programme on the selected units of Chemistry for class-IX students. So, the researcher will use **Education (science education) field** of the research.

POPULATION, RESEARCH SAMPLE AND RESEARCH TOOLS :

Population :

In the present study Gujarati Medium IX standard schools of **Anand District of Gujarat State in the Academic year 2017-18** would be considered as population of the study.

Research Sample:

In the present study, the researcher will select the sample by **convenient sampling** method out of the population.

Convenience Sample: Selection of the sample is based on ease of accessibility.

Sample means, a selected group of subjects from the population which represents the population. The study was conducted by means of the sample. The generalization applicable to the population, for which the sample was obtained, largely dependent upon the technique of sampling. Convenient sampling method was used but two groups are equal in mean scores of their previous test in the present study.

From the population, only one school of Anand district was selected that was M.U. Patel Technical High School, V.V. Nagar. Number of students as sample of the study was 80.

From that 40 students (20 Girls + 20 Boys) were selected in experimental group and 40 students (20 Girls + 20 Boys) were selected in control group.

Research Tools :

The present study aims to examine the effectiveness of blended learning programme on achievement in chemistry at class-IX. To know the effectiveness of blended learning programme, the researcher measured the chemistry achievement of the subjects of the experiment.

In this regard, the investigator will develop the following research tools

- 1. Blended learning design for Properties of Matter of chemistry for class-IX students.**
- 2. Achievement test for Properties of Matter of chemistry for class-IX students.**
- 3. Student's reflection for class-IX students.**

SAMPLE OF BLENDED LEARNING PROGRAMME

Content : element , mixture and compound

Teacher divided the students in to possible group of 5 to 7 students in the class.

Activity-1 (collaborative learning) Teacher will give some samples and chits and tell the students to categorize it into the element , mixture and compound.

Element	Mixture	Compound

Teacher will also tell the students to add other examples of these terms.

10 minutes

Teacher gives instruction to define the following terms in their own words.

Element :

Mixture :

Compound :

Activity-2 (Demonstration) Teacher shows following experiment and students will observe it.

Experiment : Teacher mixes the sulphur powder and iron filings in a bowl then iron will be separated from the mixture by magnet.

10 minutes

Activity-3 (e-content) Teacher presented a video which is also observed by the students.

15 minutes

Now students and teacher discussion will be carried out with respect to following questions.

From the above experiment and video identify the mixture ,element and compound.

Explain why it is so ?

Activity-4 (Demonstration and Discussion) Teacher demonstrates following things:

10 minutes

Teacher takes two balloons and water bottle .Balloons are labelled O_2 and H_2 .

Water bottle is labelled with H_2O .

From the above things students discuss about following questions :

>what is there in the balloons and water bottle ?

>what is the nature of O_2 and H_2 in environment ?

>why water is liquid ?

>can we separate the atoms from the water molecule using simple technique?

>why it is so?

From the above activity students'will be concluded the characteristics of following term.

10 minutes

>mixture

>compound

Activity-5 (Buzzing) students will debate on the following topic which is given by a teacher.

10 minutes

Topic- AIR is a mixture or compound. Why ?

Homework :

- 1) Read the chapter from your textbook.
- 2) Arrange the following terms in ascending order of their structure and draw a chart of it.

Term : substances,neutron element,proton,mixture,compound,electron,atom and molecule.

RESEARCH DESIGN AND DATA ANALYSIS PROCEDURE :

Research Design:

In the present study, effectiveness of blended learning programme to the teaching of “Selected Unit of Chemistry” in science and technology of standard IX was required to be checked, so experimental research method necessary to be used. Therefore, the investigator determined to select two group purposively. Hence, “Experimental-Control randomized two group only design ” used. The experimental design is however, most important in experimental research work. Which observations have to be taken, how to take them, how to analyze obtained information, which conclusions can be derived. All these matter are to be decided. Thus, the selection of the experimental strategy is to be plan systematically.

In the present study, "Experimental-Control randomized two group only design" used.

TABLE

"Experimental-Control randomized two group only design"

Group	Pre - test	Independent Variable	Post-test
Experimental Group	-	X(Blended learning programme)	T2(Achievement)
Control Group	-	X(Traditional learning)	T2(Achievement)

X =Independent variable (blended learning programme)

T2=Achievement

Data Analysis Procedure :

The data collected by investigator would quantitative in nature and therefore the scheme of analysis mostly of quantitative analysis. collected data will be classified on the basis of Statistical procedure or techniques such as mean, standard deviation, standard error difference, t-test and F-test.

Below statistical formulas used for the analysis of data.

For the sample of greater than 30

Find the standard deviation (SD), Find the standard error difference (SED) and the critical ratio $(t) = \frac{M1 - M2}{SED}$

H₀ There will be no significant difference between mean score of achievement on girls and boy in experimental group.

TABLE

" Comparison of mean scores of achievement on boys and girls in experimental group ."

Experimental Group	M	N	SD	S _{ED}	t-value
Girls	14.50	15	3.81	7.0	0.25
Boys	12.72	25	3.96		

The t-value according to the table is 2.06 and 2.79 for 0.05 and 0.01 level of confidence respectively. The observed t-value for the mean difference is 0.25 which is not significant at 0.05 and 0.01 level of confidence.

Therefore, H_{01} **There will be no significant difference between mean score of achievement on girls and boys in experimental group.**

DISCUSSION REGARDING THE RESULTS :

From the effectiveness of blended learning programme that there will be no significant difference between mean score of achievement on girls and boys in experimental group

This shows that there were mean scores of achievement on students' gender was equal in experimental group. This reveals that there were equal effect of blended learning programme on girls and boys.

It was also reveals that blended learning programme is more effective than traditional learning with respect to students' gender.

CONCLUSION OF THE STUDY :

In the present time educational technology with different pedagogy is widely used for overcome the limitation of education system where as there are more and more researches are going on to increase quality of education.

In the experimental group, there was no difference seen between girls and boys performance level which reveals that there was same effect of blended learning programme on girls and boys.

This shows that programme by blended learning could affect on gender same.

There was good performance of experimental group students than control group students which reveals that the blended learning teaching method is more effective than the traditional teaching method.

EDUCATIONAL IMPLICATIONS OF THE STUDY

>Teacher education should place an emphasis on blended learning design. Teacher should be aware of students' attitudes towards chemistry as a school subject and should seek ways to make students have positive attitudes.

> In order for meaningful learning to occur, students should relate new information to their current cognitive structure. If they can't link between new and existing knowledge, they fail to understand new concepts. Therefore, Students should have mastered basic ideas first and then should learn more complex ones.

> Curriculum programme should be based on the blended learning design and textbooks should be improved. So, that students' misconceptions can be minimized.

> Blended learning programme can be applied on trainee teachers, teachers and teacher trainers. Blended learning programme is useful for higher achievers as well as medium

and lower achievers .By this one can increase academic achievement of medium and lower achievers.

"Learning is always blended"

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