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EFFECTIVENESS OF BLENDED LEARNING PROGRAMME ON ACHIEVEMENT IN CHEMISTRY AT CLASS – IX

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ABSTRACT: Blended learning is embraced for promoting situated learning, which refer to learning in term of activity and participation in a community of practice. As students observe their peers, reflect what they do, and practice apprenticeship, they develop habits, beliefs, identities, and skills that are share by the community through interaction. Blended learning enables learners to learn in various ways possible, including problem-based and activity-based learning. Blend or mixes of the approaches that can be used to learning experience. So, even though essentially “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. Students’ should not get only information; they should have their own thinking, their own views about everything. For that blended learning programme sounds positive.

Keywords: Blended learning programme, Achievement, learning skills, chemistry.

INTRODUCTION:

Human has been trying to understand the changes going around him and has been constantly receiving a great number of impressions through his various senses such as hearing, sight, smell, taste and touch. This systematic store of human understanding gained after generalizing and inter-relating facts is known as science. Science is very important to prepare and provide proper learning materials to students’ 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 programme integrated with higher order thinking skills (HOTs) is useful. Graham (2006) describes blended learning as the convergence of face to face setting, which is characterized by synchronous and human interaction, with information and communication technology (ICT) based setting, which are asynchronous, text based and involves humans operating independently. Currently, use of the term blended learning mostly involves to combining internet and digital media with established classroom forms that require the physical co-presence of teacher and students.

TITLE OF THE STUDY:

The title of the present study was:

“Effectiveness of Blended Learning Programme on Achievement in Chemistry at Class-IX”

OBJECTIVE OF THE STUDY:

In the present research to study the effectiveness of Blended Learning Programme (BLP) against Traditional Teaching following objectives were formed.

- (1) To compare the effectiveness of Blended Learning Programme (BLP) and Traditional Teaching on achievement of chemistry at class-IX.
- (2) To study the effectiveness of Blended Learning Programme (BLP) of chemistry in relation to students HOTs at class-IX.

HYPOTHESIS OF THE STUDY:

For the fulfillment of research objectives following null hypotheses were constructed and tested.

H01 There will be no significant difference between mean score of achievement test of Blended Learning Programme (BLP) of students in experimental group and control group.

H02 There will be no significant difference between mean score of achievement test of Blended Learning Programme (BLP) of students on HOTs of experimental group and control group.

.VARIABLES OF THE STUDY:

In present research following variables were studied to fulfill the research objectives and for testing the null hypotheses.

(1) Independent Variables: -

- Teaching method-(1) Blended Learning Programme (BLP)
(2) Traditional Teaching

(2) Secondary Independent Variables: -

Gender (1) Girls (2) Boys

- #### **(3) Dependent Variables: -**
- (1) Academic achievement in selected units of chemistry
 - (2) Higher Order Thinking Skills (HOTs)
(Synthesis - Analysis, Evaluate and Create)
 - (3) Lower Order Thinking Skills (LOTs)
(Remember, Understand and Apply)

TYPE, AREA AND METHOD OF THE STUDY:

●In the present study, the data in terms of the scores of the post-tests collected and analyzed. The result of the study found out with the help of the proper statistical techniques. So the type of the study was Quantitative type of the research.

●The comparison was made between two teaching approaches on discussed variables. So the area of the study was Education field of the research.

●When the researcher wants to observe the effect of independent variables on dependent variables within certain controlled situation, experiment method is preferred. So the method of the study was Experimented method of the research.

RESEARCH POPULATION:

Effective application of teaching approach and for accurate data collections research population was delimited according to norms as described below:

1. **Area:** M. U. Patel Tech. High School, V.V. Nagar, Anand (Gujarat)
2. **Medium:** Gujarati Medium

3. **Educational level:** students studied in standard-IX

4. **Year of the Treatment:** Year 2017-2018

5. **Gender:** Boys and Girls

RESEARCH SAMPLE AND SAMPLING METHOD OF THE STUDY:

The present research was carried out to the study the effectiveness of blended learning programme(BLP) on achievement in chemistry at class-IX. Hence the students of standard-IX of M. U. Patel Tech. High School, V. V. Nagar of Anand district were taken as sample of the present research.

Name of School	Experimental Group	Control Group	Total
M.U. Patel Tech. High School, V.V. Nagar	50 (25 Boys+25Girls)	50	100

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

RESEARCH DESIGN:

According to objective and hypothesis of the present research to compare the effectiveness of two teaching approach i.e. blended learning programme approach and traditional teaching approach. In the present study, effectiveness of blended learning programme to the teaching of “chemical bonding and chemical reaction” in chemistry of standard IX was required to be checked. Hence, researcher used “Randomized Experimental group-Control group Post-test Design ”.

“Randomized Experimental group-Control group Post-test Design”

Groups	Treatment	Post-test
Experimental Group	X(Taught with blended learning programme)	T2(Achievement)
Control Group	X(Taught with traditional teaching)	T2(Achievement)

X =Independent variable (Blended learning programme and Traditional teaching)

T2=Achievement test of blended learning programme

RESEARCH TOOLS:

The tools employed for the present research were

1. Blended learning programme for selected topics of chemistry for class-IX students.
2. Achievement test for selected topics of chemistry for class-IX students.
3. Student’s reflection for class-IX students.
4. Supervisor’s reflection.

IMPORTANCE OF THE STUDY:

Anybody who wants to further study about blended learning programme(BLP) will get following importance from the present study.

- (1) One should get compare the effectiveness of blended learning programme(BLP) and traditional teaching in chemistry.
- (2) One should get information about effectiveness of blended learning programme(BLP) on HOTS skills of learner.
- (3) One should get information about preparation of blended learning programme(BLP) materials and activities.

(4) One should get information about preparation of achievement test for blended learning programme(BLP).

(5) One should get information about the effectiveness of blended learning programme(BLP) in relation between the classroom and students thinking skills.

(6) One should get information regarding how to create and sustain classroom learning environment using blended learning programme(BLP) which helpful to the students and teachers.

DELIMITATION OF THE STUDY:

- The present study was limited to the Gujarati medium secondary schools of Anand District in Gujarat State.
- The present research was limited to the students studied in standard-IX of secondary school in the academic year 2017-18.
- To study effectiveness of blended learning programme and traditional teaching, the researcher selected two units for his teaching programme from the textbook of chemistry standard-IX by GCERT. These units were: 1.Chemical Bonding and 2.Chemical Reaction

DATA ANALYSIS AND INTERPRITATION OF HYPOTHESES

H01 There will be no significant difference between mean score of achievement test of Blended Learning Programme (BLP) of students in experimental group and control group.

Group	N	Average	STDev	t-value	Result
Experimental	50	35.08	5.1104	3.4128	rejected
Control	50	27.76	9.1819		

The t-value according to the table is 1.96 and 2.58 for 0.05 and 0.01 level of confidence respectively. The observed t-value for the mean difference is **3.4128** which are significant at 0.05 and 0.01 level of confidence. Therefore it was concluded that the difference between mean score of experimental group and control group was significant. The mean score of Blended Learning Programme (BLP) of students’ in experimental group were significantly higher than that of control group.

H02 There will be no significant difference between mean score of achievement test of Blended Learning Programme (BLP) of students on HOTs of experimental group and control group.

Group	N	Average	STDev	t-value	Result
Experimental	50	26.94	4.4740	5.7612	rejected
Control	50	18.68	7.9031		

The t-value according to the table is 1.96 and 2.58 for 0.05 and 0.01 level of confidence respectively. The observed t-value for the mean difference is **5.7612** which are significant at 0.01 level of confidence. Therefore it was concluded that the difference between mean score of experimental group and control group was significant. The mean score of Blended Learning Programme (BLP) of students’ on HOTs of experimental group were significantly higher than that of control group.

RESULTS ACCORDING TO HYPOTHESES

Hypotheses	t-value	Significant level	Result
H01 There will be no significant difference between mean score of achievement test of Blended Learning Programme (BLP) of students in experimental group and control group.	t= 3.4128	0.01 level	Rejected
H02 There will be no significant difference between mean score of achievement test of Blended Learning Programme (BLP) of students on HOTS of experimental group and control group.	t= 5.7612	0.01 level	Rejected

CONCLUSION

- There was good performance of experimental group students than control group students which reveals that the Blended Learning Programme is more effective than the Traditional Teaching Approach. Blended Learning Programme can increase students' higher order and lower order thinking skills.

- 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 Programme could affect on gender same.

- There was seen that the HOTS of experimental group (Synthesis-Analyses, Evaluate and Create) students is much higher than the control group students. This reveals that teaching by Blended Learning Programme help students' to increase their HOTS than the Traditional Teaching Approach.

So, its reveals that teaching by blended learning programme helpful to students higher order thinking skills (HOTS) as well as achievement.

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