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Potency of Blended Learning in Learning Science

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ABSTRACT

The study found out the effectiveness of Blended Learning in learning Science among the learners at standard IX. Blended Learning is particularly beneficial for any student learning science. Objectives of the study: 1.To find out the significant difference in achievement mean score between the pre test of control group and post test of control group.2.To find out the significant difference in achievement mean score between the pre test of Experimental group and post test of Experimental group. 4.To find out the significant difference in achievement mean score between the post test of controlled group and the second post test of treatment given controlled group.5.To find out the potency of Blended Learning in learning science. Methodology: Rotational group Experimental method was adopted in the study. Sample: Sixty students of studying in standard IX from Gopal Naidu Higher Secondary School, Coimbatore were selected as sample for the study. Tool: Researcher's self-made achievement test was used as tool for the study. Findings: Blended Learning is more effective than traditional methods in learning Science for the learners at standard IX. Educational implications: It can be implemented to other classes also.

KEYWORDS : Blended learning, Science, Treatment given controlled group, Mixing online and other methods

Introduction

Blended Learning is an approach to learning and teaching which combines and aligns learning undertaken in face-to-face sessions with learning opportunities created online. New types of learning activities challenge our thinking as to how learning might be facilitated, creating new etiquettes of learning and teaching, and shifting the locus of control from the teacher to the learner. (Littlejohn and Pegler, 2006, p4). A Blended Learning approach is one, which in most cases, will enhance and extend the learning opportunities for our 21st Century learners. In the blended classroom, the teacher uses the best properties of both classrooms. This means it must be familiar with the characteristics of both classrooms when planning the teaching. The physical classroom exists in the present. It gives a good overview of where the class is and how they are progressing. It can respond immediately to any misconceptions of students and re-align goals and correct understanding for the entire class. It is also useful for livening up the curriculum and focusing the entire group's attention. The physical classroom also enables the students to see and respond to each other directly, not just in terms of what each person says, but also how they say it.

Need of the study

Students of standard IX had problems in learning science by adopting traditional methods and they scored very less mark. Hence the investigator tried to use the Blended learning method for learning science.

Review of Literature

Yapici, I.Umit and Akbayin, Hasan (2012) determined the effect of the blended learning model on high school students' biology achievement and on their attitudes towards the Internet. Among the experimental models, the pretest-posttest control group model was used in the study. The study was carried out with 107 students (47 of whom were in the experimental group, and 60 of whom were in the control group) attending Nevzat Ayaz Anatolian High School in Diyarbakir in Spring Term of the academic year of 2009-2010. In the experimental group, the courses were taught based on the blended learning model via a website (www.e-biyoloji.net), while in the control group, the courses were taught based on traditional teaching methods. An Internet Attitude Scale [image omitted] =0,97) and an achievement test of 40 questions (KR-20=0.88) were used as the data collection tools. For the analysis of the data, mean scores, independent t-test and paired samples t-test were used. The research results revealed that the blended learning model contributed more to the students' biology achievement than traditional teaching methods did and that the students' attitudes towards the Internet developed statistically significantly.

Objectives of the study:

1. To diagnose the problems of the learners in learning science through conventional methods.

2. To find out the significant difference in achievement mean score between the pre test of control group and post test of control group

.3. To find out the significant difference in achievement mean score between the pre test of Experimental group and post test of Experimental group.

4. To find out the significant difference in achievement mean score between the post test of controlled group and the second post test of treatment given controlled group.

5. To find out the impact of Blended Learning method in learning Science.

Hypotheses of the study:

1. There is no significant difference in achievement mean score between the pre test of control group and post test of control group

.2. There is no significant difference in achievement mean score between the pre test of Experimental group and post test of Experimental group.

3. There is no significant difference in achievement mean score between the post test of controlled group and the second post test of treatment given controlled group.

4. Blended Learning method is more effective than conventional methods in learning Science

Variables

The independent variable - Blended learning and the dependent variable namely achievement score were used in the study.

Delimitations of the Study

The responsibility of the researcher is to see that the study is conducted with maximum care in order to be reliable. However, the following delimitations could not be avoided in the present study.1. The study is confined to 60 students of standard IX studying in Gopal Naidu Higher secondary School. 2 .The study is confined to learning Science in

specifically biology of the Tamilnadu state board science text book only.

Methodology: Rotational group Experimental method was adopted in the study. **Sample**: Sixty pupils of studying in standard IX Gopal Naidu Higher secondary school, Coimbatore were selected as sample for the study. Thirty students were considered as Controlled group and another thirty were considered as Experimental group. **Tool:** Researcher's self-made achievement test was used as a tool for the study. The achievement test was consisted of twenty five questions

Construction of tools:
The investigator's self made Achievement test was used for the pre-tests and post tests of both control groups and experimental groups. The same question was used for both pre and post tests to evaluate the pupils knowledge in biology in science subject through objective types of question which carried one mark for each question and contained 25 marks.

Pilot study
In order to ascertain the feasibility of the proposed research and also the adequacy of the proposed tools for the study, a pilot study had been undertaken. During the pilot study, the problem under study had been finely tuned. Sufficient number of model question papers were prepared and distributed to 10 students of standard IX in Gopal Naidu Higher secondary school, Coimbatore for the pilot study. This exercise was repeated twice over two sets of 10 students each. The clarification raised by the students was cleared then and there and the filled answer scripts were collected by the researcher. These students were selected in such a way that they were not part of either the control group or experimental group.

Reliability of the tool
A test is reliable if it can be repeated with a similar data set and yields a similar outcome. The expectation of a good research is that it would be reliable. It refers to the trustworthiness or consistency of measurement of a tool whatever it measures. Under this study, the reliability had been computed using test-retest method and the calculated value comes to 0.76. The value is quite significant and implies that the tools adopted were reliable. Hence the reliability was established for the study.

Validity of the tool
The concept of validity is fundamental to a research result. A result is internally valid if an appropriate methodology has been followed in order to yield that result. A test is said to be valid if it measures what it intends to measure. The expert opinion of the co staff was obtained before freezing the design of the tools. Subject experts and experienced teachers were requested to analyse the tool. Their opinions indicated that the tool had content validity.

Procedure of the study:
The following activities were designed
1. Designing the Blended learning.

2. Online learning.

3. Mixed methods.

Planning of Blended learning

Planning of Blended learning,

Select activities.

Gather materials.

Plan extra time.

Record process and results.

Discuss and review

Try again. .

Data collection:
The researcher administered pretest to the pupils with the help of the teachers. The question paper and response sheets were given to the individual learners and collected and evaluated learning obstacles of the learners were identified by the pretest. The causes of low achievement by unsuitable methods were found out. Blended learning method was used in the classroom for learning science for one week. The posttest was administered and the effectiveness of Blended learning was found.

RESULTS
Hypothesis 1:
There is no significant difference between the pre- test of control group and post test of control group in achievement mean scores of the students in learning Science

Table -1
Mean scores between pre test of control group and posttest of Control group.

Stages	N	Mean	S.D.	df	t- value	Level of significance
Pretest control group	30	22.50	3.45	58	0.57	P<0.05
Post test control group	30	23.00	3.32			

In the table-1, the calculated't' value is (0.57) less than table value (2.00). Hence null hypothesis is accepted at 0.05 levels. Hence there is no significant difference between the pre test of control group and post test of control group in achievement mean scores of the learners in learning science by conventional methods

Hypothesis 2:
There is no significant difference between the pre test of Experimental group and post test of Experimental group in achievement mean scores of the students in learning Science

Table-2
Mean scores between pretest of Experimental group and posttest of Experimental group.

Stages	N	Mean	S.D.	df	t- value	Level of significance
Pretest Experimental group	30	22.38	3.42	58	17.70	P>0.05
Post test Experimental group	30	38.43	3.60			

In the table-2,the calculated't' value is (17.70) greater than table value (2.00). Hence null hypothesis is rejected at 0.05 levels. Hence there is significant difference between the pre test of Experimental group and post test experimental group in achievement mean scores of the learners of science.

Hypothesis 3
There is no significant difference in achievement mean score between the post test of controlled group and the second post test of treatment given controlled group

Table-3
Difference in achievement mean score between the post test of controlled group and the second post test of treatment given controlled group

Stages	N	Mean	S.D.	df	t- value	Level of significance
Posttest Control group	30	23.00	3.32	58	14.80	P>0.05
Post test Control group after treatment –Blended learning	30	36.32	3.64			

In the table-3,the calculated't' value is (14.80) greater than table value (2.00). Hence null hypothesis is rejected at 0.05 levels. Hence there is significant difference between the pre test of Experimental group and post test experimental group in achievement mean scores of the learners of Science.

Hypothesis 4.
Learning Science by using Blended learning is more effective than existing methods.

Achievement mean scores of the learners in Pre-test of control group is 22.50 and the achievement mean scores of the learners in post test of Control group is 23.00. Pretest test of Experimental group(23.00) is greater than Post test of Experimental group(38.43).Post test of control group is 23.00 greater than second post test of controlled group after treatment given to control group. It shows that learning through Blended learning is more effective than conventional methods

Findings:
Students of standard IX have problems in learning Science. In the pre-test, students score 23% marks in learning Science through conventional method and the Experimental group students score 52% marks. It substantiated that Students of standard IX had problems in learning Science by using conventional methods in Science

2.There is no significant difference in achievement mean score between the pre test of control group and post test of control group

3 There is a significant difference in achievement mean score between the pre test of Experimental group and post test of Experimental group.

4. There is a significant difference in achievement mean score between the post test of controlled group and the second post test of treatment given controlled group.

5. Blended Learning method is more effective than conventional method in learning Science

EDUCATIONAL IMPLICATIONS
Blended learning can be used for learning different subjects and it can be extended to secondary level and higher secondary level.

It can be encouraged to implement to use in Higher education

It may be implemented in teachers education

It may be implemented in alternative school

Late bloomers can be improved by using it

CONCLUSION
The study highlights the problems faced by the learners in acquiring competency in Science by using traditional approaches. Blended learning is more effective in acquiring competency in Science Hence it will be more supportive to promote the competency of the learners in Science. Like the effective methods of using Blended learning method was attracted the learners of standard IX in learning Science.

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