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Social

EFFECTIVENESS OF BLENDED LEARNING CLASSROOM IN COMPUTER SCIENCE TEACHING AND LEARNING

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Abstract

In recent trends teaching and learning become very interesting due to the innovative methods of teaching using many technologies and practical tools. This study is dealing with new trends in education that can help one to become a modern teacher. Students like the teaching of modern teachers because they can actively participate in the learning process. E-content, Video Lessons and Online teaching and many other tools are used to present the subject innovatively and productively. Blended learning classroom is the latest educational technique that is being adapted in modern classrooms to enhance the learning experience of the students. The researcher is a Computer Science educator and she prepared a video lesson on "Working with Linux - Ubuntu" which is in Volume-I, Unit-I, Chapter 5 of XI Standard Computer Science text book in Tamil Nadu State Board Samacheer Kalvi new syllabus. The conclusion of her study reveals that blended learning classroom has positive impact on XI Std pupil's academic fulfilment of Computer Science.

Keywords: Effectiveness; Blended Learning Classroom; Computer Science Teaching; Learning.

1. Introduction

Need and Significance of the Study

Blended Learning is an educational model where some lessons are delivered in a regular classroom strategies and some lessons are delivered in a digital format. In blended learning the traditional classroom is still in effect, however some of the lessons are replaced with Video Lesson learning. Blended learning classroom is also called as hybrid, mixed**,** or Integrative Learning because it has a combination of the traditional classroom and educational technology. Blended learning uses technology to expand the classroom learning environment and allow students to learn at their own pace. "The increasing availability of Internet connectivity and interactive Web applications have

contributed to the growth in the number of schools implementing Blended Learning" (Ugur, Akkoyunlu, & Kurbanoğlu, 2011). "Although implementing the Blended Learning is a complex process because educators must determine the perfect blend of face-to-face activities and online learning activities when designing courses, early research indicates students have favourable opinions about participating in Blended Learning courses versus the traditional classroom "(Yapici & Akbayin, 2012). "In the future, teachers and students will need to work collaboratively and take equal ownership in determining the best principles for an approach that redefines what it means in order to teach and learn" (O'Byrne, & Pytash, 2015).

Blended Learning Classroom will be most suitable for computer science teaching and learning. Hence, the investigator conducting and experiment study on Blended Learning in Computer Science teaching for XI standard Students in Tamil Nadu State Board Samacheer Kalvi New Syllabus.

2. Terms and Meaning

Effectiveness - deals with the independent variable introduced in this study
Blended Learning Classroom - which means the pedagogical approach to education that combination of Traditional classroom and online teaching classroom for educational teaching and learning materials.
Computer Science Teaching and Learning - in which teaching refers to teach the Computer Science subject for XI standard Pupils and Students' learning refer to their academic achievement in computer science subject.

3. Objectives of the Study

The Objectives of this present study is as follow:
1) To Create a video lesson on Working with Linux - Ubuntu which is in Volume-I, Unit-I, Chapter 5 of XI Standard Computer Science text book in Tamil Nadu State Board Samacheer Kalvi new syllabus.
2) To Validate the video lesson on Working with Linux - Ubuntu which is in Volume-I, Unit-I, Chapter 5 of XI Standard Computer Science text book in Tamil Nadu State Board Samacheer Kalvi new syllabus.
3) To Compute a criterion test on Working with Linux - Ubuntu which is in Volume-I, Unit-I, Chapter 5 of XI Standard Computer Science text book in Tamil Nadu State Board Samacheer Kalvi new syllabus.
4) To Validate the criterion test on Working with Linux - Ubuntu which is in Volume-I, Unit-I, Chapter 5 of XI Standard Computer Science text book in Tamil Nadu State Board Samacheer Kalvi new syllabus.
5) To find out the effectiveness of Blended Learning on Working with Linux - Ubuntu which is in Volume-I, Unit-I, Chapter 5 of XI Standard Computer Science text book in Tamil Nadu State Board Samacheer Kalvi new syllabus.

4. Hypothesis for this Present Study

The following hypothesis are framed by the researcher for her present study.

H1.   From the mean score there is no significance difference on Criterion Test on Working with Linux - Ubuntu which is in Volume-I, Unit-I, Chapter 5 of XI Standard Computer Science text book in Tamil Nadu State Board Samacheer Kalvi Samacheer Kalvi new syllabus between Pre-test and Post-test of experimental group design.

5. Limitations of this Study

This present study is conducted for the Blended Learning Classroom module Created and validated on Working with Linux- Ubuntu which is in Volume-I, Unit-I, Chapter 5 of XI Standard Computer Science text book in Tamil Nadu State Board Samacheer Kalvi new syllabus. This study is only for XI Std students following Tamil Nadu State Board Samacheer Kalvi Samacheer KalviNew Syllabus.

This experimental research is conducted only for the urban area students. The other   board of XI standard CBSE, ICSE and other streams have not been considered for this present   study. English Medium syllabus of Tamil Nadu Textbook Society for XI Standard computer   science has been taken for this study.

6. Methodology - Design of the Study

Design of this present study is the set of methods and rules used in collecting and analyzing measures of the variables specified in the problem research. In the present study, the researcher creating and Validating Blended learning classroom on Working with Linux-Ubuntu in Computer Science unit of XI standard. To achieve the objectives, the researcher has select a Pre-test and Post-test experimental group design. The representational presentation of the design for this study is as follows:

Pretest - Posttest Experimental design	
1. Variables	
1. Independent Variable	Blended Learning the Linux-Ubuntu Operating System in Computer Science Unit of XI std through Video Lesson for Blended Learning Module in Experimental Group.
2. Dependent Variable	Criterion Test in Working with Linux-Ubuntu in XI std Computer Science syllabus.
2. Tools Used in This Study	
Materials	**Purpose of This Study**
1. Criterion Test	To evaluate the academic fulfilment of the XI Std students in the unit Working with Linux-Ubuntu in the Computer Science.
2. Video Lesson Package: Blended Leaning on Working with Linux-Ubuntu in the computer science unit.	For the treatment variable

3. Sample Selection

Limitation of the sample				
Group	**Boys**	**Girls**	**Total**	XI Std School Student
Experimental	15	15	30	DRBCC Govt Aided Hr. Sec School and TELC Govt. Aided Hr. School, Chennai.

III. Data Collection

The Samples are collected from the pinpoint students using Criterion test for XI Std Computer Science before and after the treatment.

Item Analysis for The Criterion Test

To improve the validity and reliability of the test usually we go for the Item analysis. From that item analysis we have to find the item difficulty level and item discriminative index level.

Data Collection

The present study is a pre test - post test Experimental Group design. The selected sample for conducting the experiment is presented in the above table.

Data Analysis

The researcher applied 't' test between Pre and Post test scores of Criterion Test in Ubuntu Operating System in the Computer Science Chapter.
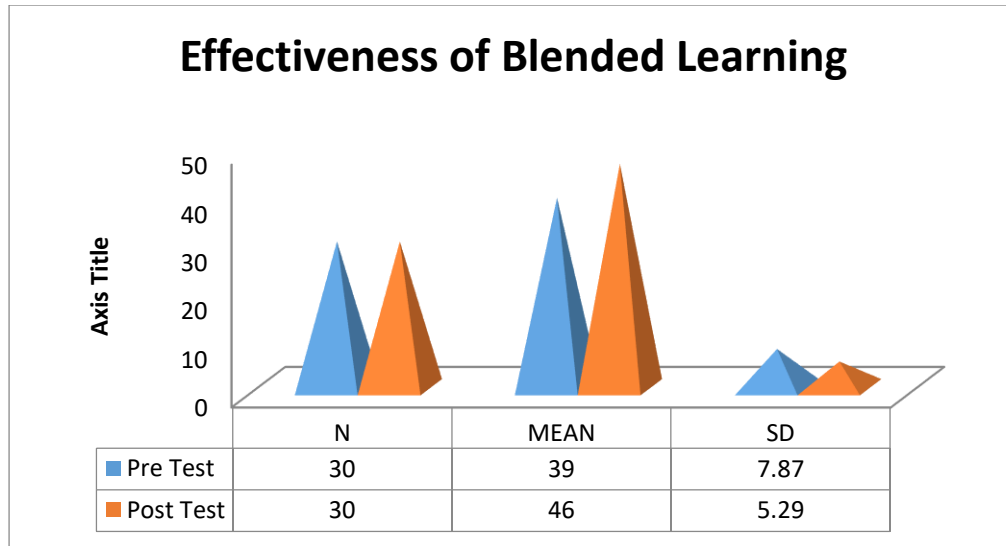
Hyphothesis - I

There is no significance difference between the mean scores of Criterion Test on Working with Linux-Ubuntu in the Computer Science Unit between Pre test and Post test of experimental group of XI std students.

The following table shows that the 't' test results on the Criterion Test in Working with Linux-Ubuntu in the Computer Science Unit between Pre test and Post test of experimental group.

Criterion Test in Working with Linux-Ubuntu in Computer Science between Pre test and Post Test of Experimental Group

Test	**Total No. of the student N**	**Mean Score**	**SD**	**'t'**	**DF**	**Significant Level**
Pre Test	30	39	7.87	4.049	58	0.01
Post Test	30	46	5.29			

From the above table the 't' value between the Pre test and Post test of Experimental group in the Criterion Test on Working with Linux-Ubuntu in the Computer Science is 4.049. It is significant at 0.01 and 0.05 level for the df 58. The mean of Post test of Experimental group (46) is higher than the mean of Pre test of Experimental group (39). Therefore, the research hypothesis is accepted and null hypothesis is rejected. This could be inferred that the Blended Learning Classroom on Working with Linux-Ubuntu in the Computer Science chapter has positively impact in the students' academic fulfilment of XI Std Computer Science Subject.

Effectiveness of Blended Learning

	N	MEAN	SD
Pre Test	30	39	7.87
Post Test	30	46	5.29

The above Picture shows that the Significance Difference in the Mean Achievement of Criterion Test on Working with Linux-Ubuntu in Computer Science between Pre-Test and Post-Test of Experimental Group.

7. Finding of this Study

The Blended Learning Classroom in Computer Science Unit has been positively impact on XI Standard Students' Achievement in Computer Science Subject.

8. Conclusion

The blended Learning is in fact very compatible with most of our commonly accepted practices of learning theory. As far as the overall effectiveness of the pedagogical subject, this present study conclude that the experiment study has conducted for XI Std Computer Science Students before and after blended instruction. Derived from this experiments the researcher concluded that the students' academic fulfilment is highly impact positively after the blended instruction in computer science unit of XI std students.

9. Educational Implication

The present study indicates the blended learning has impacted positively in students' academic achievement in computer science subject. Therefore, all the computer science teachers may be used this instruction strategy for their subject. The student may learn the concepts easily from the video lesson. All the schools and other educational institutions may continue to implement technology based learning will provide the effective teaching and learning for all the pupils.

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