EFFECTIVENESS OF BLENDED LEARNING FOR TEACHING INCLUSIVE EDUCATION TO TEACHER TRAINING PROGRAMME

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Abstract

In 21st century education took a big leap which lead to the paradigm shift of closed model and teacher-centered classroom to an open model and student-centered classroom leading to shift in teaching-learning process from chalk and talk to interactive method. But the importance of teacher in the classroom is inevitable. For this a better solution i.e. to be in the pace with "brick and mortar" schools along with computer-mediated activities which is only possible through blended learning for which many online platforms are used .Moodle has diverse features which can be incorporated as a teaching online tool for blending it with face to face interaction which helps the students to learn in their own unique style and pace. The present study aims to find out the effectiveness of blended learning instruction using Moodle for subject Inclusive Education in terms of achievement when Intelligence and Teaching aptitude are taken as a co-variate. The reaction of the students towards blended learning was also to be recorded. This study was conducted during the second semester in the year 2016-17.Participants were 50 B.Ed. trainees' selected from RTMNU's Bar. S.K. Wankhede College of Education , Nagpur M.S. The pre test post test non -equivalent group design was adopted for this study. The control group was taught using traditional method where as experimental group was taught using module developed on moodles. Data analyzed reveals that experimental group achievement score was higher than the control group. There is significant difference in mean scores of achievement in Inclusive Education of experimental and control group, when Intelligence and Teaching Aptitude was taken as covariate. The students also gave positive reaction towards the blended learning module. The result shows that blended learning is more effective than the traditional method of teaching.

Keywords: *Blended learning, Inclusive Education, Teacher training, Moodle*

As always it is true to state that, Education is a bountiful resource which forms the basis for the enrichment of an individual's life, the uplifting of the society, the development of the nation, the harmony and rejoices of the world. In 21st century Education took a big leap which lead to the paradigm shift of closed model and teacher-centered classroom to an open model and student-centered classroom. An educational aim helps the teacher connect her present classroom activity to a cherished future outcome without making it instrumental, and therefore give it direction without divorcing it from current concerns (NCF, 2005).Education these days has been the top priority for any family or individual person, and no doubt, amongst the latest technologies to promote and maintain the educational standards, the internet comes first. The Internet is not only an access to websites these days but there is knowledge and information on every aspect of the educational world over the internet. It was found that through internet there are numerous environments that meet a set of features for creating and structuring of courses in the distance. These environments are also known LMS (Learning Management System). Some of these environments used for creating and managing these online courses are: Moodle, Flip

classroom, Skype, Mooc, TelEduc, Blackboard, WebCT, Tool book, Top Class Server, and others. This system covers the entire process of blended learning, distance learning, possessing interface and student teachers, tutors, to administrators and the administrative part. It helps students to plan their learning processes, and work together, through the exchange of information and knowledge. The teachers facilitate and monitor the teaching-learning process. For this a better solution i.e. to be in the pace with "brick and mortar" schools along with computer-mediated activities which is only possible through blended learning for which many online platforms are used.

Blended learning is a flexible learning strategy that integrates innovative and technological advances of online learning with interaction and participation of traditional classroom learning. Blended learning environment integrates the advantages of e-learning method with some advantageous aspects of traditional method, such as face-to-face interaction. This enables increased interaction between student-instructor, student-student, student-content, and student- outside resources. As both the face-to-face instruction and online learning suffer from limitations, it is natural to combine the strengths of the two modes into blended learning.

Through blended courses the students and faculty are allowed to take advantage of much of the flexibility and convenience of an online course while retaining the benefits of the face-to-face classroom experience. The Moodle (Modular Object-Oriented Dynamic Learning Environment) platforms as an Open Source Learning Management System (OS LMS) which can be used in a blended learning as a web based tool.

Moodle is an acronym for Modular Object Oriented Dynamic Learning Environment and it is a course management system (Course Management System - CMS) through the Internet, also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE). It is a free web application that teachers and educators can use to create effective online learning sites. Moodle has diverse features which can be incorporated as a teaching online tool for blending it with face to face interaction which helps the students to learn in their own unique style and pace. Moodle allows the integration of a wide range of resources, from chats and forums to online booklets, a variety of questions, collections of problems and exercises, lecture notes; including any kind of text-based or Html- formatted documents, multimedia resources such as graphics, video or audio (e.g., MP3 files), PowerPoint, or Flash-based applications and Java applets (Goodwin-Jones, 2003).

As Moodle offers students an e-learning platform and with its flexibility and intuitive user interface it provides a number of benefits. Students are more motivated due to the diversity of learning methods, and variety of content. It helps the students in accessibility to learning materials anytime and anywhere which increases learner's convenience. For the teachers, Moodle provides a flexible platform to add resources according to the need and demand of the situation related to students. As in today's scenario most of the teacher training programs are lacking this blended learning environment. Teacher's education is essential to implement the concept of inclusive education for the differently disabled children or diverse need children's so that an inclusive environment should be created in the school setting. Consequently, it is also essential to train all teachers in same way to enhance their skills and update their knowledge. For the enhancement of the knowledge of teacher trainees, the blended

learning environment should be created. Hence, the diverse features of the Moodle platform was incorporated in the developed blended learning module.

Need and Significance of the study

The need of today's classrooms is the incorporation of technology along with the reorganization of classroom environment and inclusion of students with diverse needs in mainstream schools. The teacher trainees' should be aware of the importance of inclusive services. So, there is a need to improve the teacher training programs and professional development activities for the realization of the goals of inclusive services through the subject of Inclusive Education. In this perspective, blended learning through Moodle in teacher training programme will facilitate teacher expertise in teaching and learning. Blended learning enhances the accessibility, learning performance, cost effectiveness, interaction and more participation. Moodle is a highly interactive platform which will enhance the professional development of the teacher trainees' in realization of the importance of Inclusive Education.

Objectives

To develop teaching module based on blended learning using moodle for teacher trainees of B.Ed course for inclusive education subject; To study the effectiveness of blended learning module i.e. teaching through moodle in terms of:- Achievement of student; Reaction of student; To compare the mean overall achievement score of teacher trainees of B.Ed course studying through blended learning module i.e. moodle with those studying through traditional method of teaching for inclusive education subject; To compare the mean overall achievement score of teacher trainees of B.Ed course studying through blended learning module i.e. moodle with those studying through traditional method of teaching for inclusive education subject when Intelligence and teaching aptitude is taken as covariate.

Hypothesis: There will be no significant difference between the mean achievement score of teacher trainees of B.Ed course studying through moodle with those through traditional method; There will be no significant difference between the mean achievement score of teacher trainees of B.Ed course studying through moodle with those through traditional method when intelligence and teaching aptitude is taken as covariate.

Sample: For the present study, 50 teacher trainees of B.Ed. course from RTMNU's Bar. S.K.Wankhede College of Education, Nagpur city was taken as sample for the study Out of the 50 teacher trainees , 25 teacher trainees were selected for the control group and 25 teacher trainees were selected for the experimental group.

Methodology: The study has adopted the non-equivalent group design. The sample of control (n=25) and experimental group (n=25)were selected randomly from RTMNU's Bar. S.K.Wankhede College of education, , Nagpur . The Control group was taught through traditional method and experimental group was taught through blended learning module via Moodle. It is an attempt to study the usefulness of blended learning using Moodle as a technological tool for inclusive education course for Teacher trainees at B.Ed. level.

Variables of the study

In this study, the independent variable is the blended learning using Moodle and the dependent variable are the achievement, reaction and covariates are intelligence and teaching aptitude of teacher trainees in Inclusive education subject using Moodle.

Treatment

In this study, the total of 50 samples was selected among teacher trainees studying B.Ed. course at RTMNU's Bar. S.K.Wankhede college of Education, , Nagpur . in the beginning a pre-test was conducted for both the control and experimental group by administering self prepared criterion reference test based on Inclusive Education subject. The investigators created a moodle site http://myproject.moodlecloud.com and uploaded the study materials on all four units of Inclusive Education subject along with assignment & online quiz on that site in which the 25 samples of experimental group were enrolled. The investigator taught Inclusive Education subject to the control group through traditional lecture method and experimental group through traditional along with the online based instruction via Moodle. In between the course after completion of first unit an Intelligence test was administered and after completion of second unit the Teaching Aptitude test was administered for both control and experimental group .After the treatment for a one month time period, the investigator conducted the post-test by administering the same the self prepared criterion reference test on both control and experimental group. The reaction of the teacher trainees for the blended learning was also recorded by administering a self prepared reaction scale.

Tools

The tools used in the present study were:-Self-prepared criterion references test on all four units of Inclusive Education subject for measuring the achievement of the teacher trainees; Self-prepared reaction scale was used to know the reaction of the students for blended learning module; Standardized tests of General Intelligence test i.e. TGI-PM by Prof. S.K. Pal and Prof. K.S. Mishra and Teaching Aptitude test, TAT-DS by Dr. Surender S. Dahiya and Dr. L. C. Singh was administered to measure the Intelligence and Teaching Aptitude of teacher trainees.

Statistical techniques used

 Student's 't'-Test (Kothari, C.R., 2009; pp: 160), chi-square test and ANCOVA was used as statistical tools for the analysis of Data.

Data analysis

Objective 1: To develop teaching module based on blended learning using moodle for teacher trainees of B.Ed course for inclusive education subject. Module based on the four units of Inclusive Education subject for teacher training programme of B.Ed. course was uploaded on the Moodle site i.e. http://myproject.moodlecloud.com by the researcher.

Objective 2: To study the effectiveness of blended learning module i.e. teaching through moodle in terms of:Achievement of student

A self prepared criterion reference test was administered on the experimental group.

Pre-test & Post-test Scores of Experimental Group

Test	Number	Mean	S.D.	Calculated 't'-value
Pre-test	25	22.48	5.4	
Post-test	25	32.08	4.5	6.66*

* Significant at 0.01 level
** Significant at 0.05 level

To study the effectiveness of blended learning module i.e. teaching through moodle in terms of Reaction of student.

The reactions of the students of Experimental group were obtained by administering a self prepared reaction scale based on four aspects. The obtained data were analyzed

for each statement separately by computing percentage and chi square for frequencies and then comparing the obtained chi-square value of each statement to the table chi-square value at 0.05 & 0.01 significance level.

A) Instruction through Moodle in blended learning:

S. No.	Statement	SA	A	U	D	SD	Total	Chi-square
1	Moodle is a good tool for blending with face to face teaching.	12	8	3	1	1	25	18.8*
2	Sufficient instructions were given to learn through Moodle	7	13	3	1	1	25	20.8*
3	Reading of subject matter through moodle is difficult	3	2	5	10	5	25	7.6
4	Online and classroom activities work well together	9	11	4	1	0	25	18.8*
S. No.	Statement	SA	A	U	D	SD	Total	Chi-square
5	Online communication is a friendly experience	9	10	4	1	1	25	14.8*
6	Blended learning allows you to meet your learning goals	10	9	4	2	0	25	15.2*
7	I was quite at ease while interacting on Moodle platform	6	11	6	1	1	25	14*
8	I feel motivated while learning through Moodle in blended learning	9	10	5	1	0	25	16.4*
9	It took so much time to learn through Moodle, there is wastage of time.	3	2	5	10	5	25	7.6
10	I would like to read other subjects also using Moodle platform.	8	13	3	1	0	25	23.6*

* Significant at 0.01 level
** Significant at 0.05 level

B) Presentation of the content:

S. No.	Statement	SA	A	U	D	SD	Total	Chi-square
11	The content is arranged in proper sequence	7	13	4	1	0	25	22*
12	Link shared are quite useful	9	14	2	0	0	25	31.2*
13	Explanations given in the text were appropriate.	7	12	5	1	0	25	18.8*
14	There is sufficient content to explain the concept.	7	14	3	1	0	25	26*
15	Content are according to the subject matter.	9	15	1	0	0	25	36.4*
16	It is easy to post our assignments on moodle.	6	13	2	2	2	25	18.4*
17	Questioning style was quite appropriate	7	9	7	1	1	25	11.2**
18	Activities are planned carefully.	11	9	4	1	0	25	18.8*
19	Menu choice helped in learning according to my own need & choice.	11	11	2	0	1	25	24.4*
S. No.	Statement	SA	A	U	D	SD	Total	Chi-square
20	The language used in Moodle platform is simple to understand.	10	13	2	0	0	25	29.6*

* Significant at 0.01 level
** Significant at 0.05 level

C) Technical facilities available:

S.No.	Statement	SA	A	U	D	SD	Total	Chi-square
21	Different instructions given on screen help to use this package.	5	14	4	2	0	25	23.2*
22	Uploading and Downloading materials is easy through Moodle.	14	11	0	0	0	25	38.4*
23	In-built mechanism of shifting from one frame to other frame helps in learning.	6	13	6	0	0	25	23.2*
24	Menu choice saves the time to learn.	9	11	3	2	0	25	18*
25	Instructions are not sufficient in each frame to handle the Moodle.	1	5	2	10	7	25	10.8**
26	Capital letters used in heading highlighted the points covered.	8	11	4	2	0	25	16*
27	The use of moodle has made the learning more accessible.	7	13	2	3	0	25	21.2*
28	Learning according to my own choice develops proper understanding.	8	9	7	0	1	25	14*
29	Activities provided in the web environment are relevant to the topics.	10	11	4	0	0	25	22.4*
30	Abstract ideas have been presented in concrete form in natural ways.	1	15	3	3	3	25	25.6*

* Significant at 0.01 level

** Significant at 0.05 level

D)   Evaluation, Feedback and Follow Up:

S.No.	Statement	SA	A	U	D	SD	Total	Chi-square
31	Explanation style was quite appropriate.	8	14	3	0	0	25	28.8*
32	Explanation of concept helps to understand the content.	6	16	1	2	0	25	34.4*
33	Prompts are useful to draw the information.	2	14	6	2	1	25	23.2*
34	Discussion session helps to clear concepts.	3	12	7	2	1	25	16.4*
35	Suggestion given after committing mistakes and correct answer helps to learn more clearly.	11	13	1	0	0	25	33.2*
36	Questions are easy to understand and helpful in developing reasoning ability.	5	14	3	0	3	25	22.8*
37	Discussion sessions and references are motivating for self-learning.	5	11	7	0	2	25	14.8*
38	I feel progressive while I am in the cyberspace.	7	14	4	0	0	25	27.2*
39	It is easy to give feedback in the comment box.	12	11	1	0	1	25	28.4*
40	I like in-built evaluation facilities.	9	14	0	1	1	25	30.8*

* Significant at 0.01 level

** Significant at 0.05 level

Objective 3:- To compare the mean overall achievement score of teacher trainees of B.Ed course studying through blended learning module i.e. moodle with those studying through traditional method of teaching for inclusive education subject.

For this objective a null hypothesis was formulated i.e. there will be no significant difference between the mean achievement score of teacher trainees of B.Ed course

studying through moodle with those through traditional method. A self prepared criterion reference test was administered on both the control and experimental group.

Post-test scores of Control group & Experimental group

Group	Test	No. of student	Mean	S.D.	Calculated 't'-value
Control group	Post-test	25	27.72	5.00	3.18*
Experimental group	Post-test	25	32.08	4.5	

* Significant at 0.01 level

** Significant at 0.05 level

Objective 4:- To compare the mean overall achievement score of teacher trainees of B.Ed course studying through blended learning module i.e. moodle with those studying through traditional method of teaching for inclusive education subject when Intelligence and teaching aptitude is taken as covariate.

For the above objective a null hypothesis was formulated i.e. there will be no significant difference between the mean achievement score of teacher trainees of B.Ed course studying through moodle with those through traditional method when intelligence and teaching aptitude is taken as covariate.

For Intelligence as covariate:-

Significance of difference between mean achievement scores of the Control group & Experimental group by taking Intelligence as covariate

Group	No.	Mean of Intelligence score	Mean of achievement score	Adjusted mean of achievement score
Control	25	25.44	27.72	27.88
Experimental	25	26.76	32.08	31.7

Analysis of co-variance of achievement scores by taking intelligence as covariate

Sources of variance	Df	Sum of squares	Mean square	F-value
Group	1	237.6	237.62	12.23*
Error	47	894.0	19.44	
Total	48			

* Significant at 0.01 level

** Significant at 0.05 level

For Teaching Aptitude as covariate:-

Significance of difference between mean achievement scores of the Control group & Experimental group by taking Teaching Aptitude as covariate

Group	No.	Mean of Teaching Aptitude score	Mean of achievement score	Adjusted mean of achievement score
Control	25	33.56	27.72	27.15
Experimental	25	33.52	32.08	32.38

Analysis of co-variance of achievement scores by taking Teaching Aptitude as covariate

Sources of variance	Df	Sum of squares	Mean square	F-value
Group	1	237.6	237.62	10.34*
Error	47	1075.1	22.87	
Total	48			

* Significant at 0.01 level

** Significant at 0.05 level

Finding: In the light of above statistical analysis the main findings of the study are given below: The blended learning module was found to be effective in terms of achievement of teacher trainees on self prepared criterion reference test. There was

significant difference between pre-test and post-test mean scores of Experimental group; The blended learning module was found to be more effective in terms of achievement of teacher trainees as compared to the traditional teaching method on self prepared criterion reference test. There was significant difference between the mean overall achievement score of teacher trainees of B.Ed course studying through blended learning module through moodle with those studying through traditional method of teaching for inclusive education subject; The reaction of the teacher trainees was found to be positive towards the blended learning module through moodle; The blended learning module was found to be superior and more effective to the traditional teaching method in terms of overall achievement when Intelligence was taken as covariate; The blended learning module was found to be superior and more effective to the traditional teaching method in terms of overall achievement when teaching aptitude was taken as covariate.

Conclusion

On the basis of the findings of the study certain conclusion can be drawn:-

It's difficult to totally replace the traditional method of teaching or moving towards the only online learning platform. Hence, it will be more effective to move towards the blended learning, when online learning platform is integrated in a planned way with the traditional method of teaching which will overcome the pros and cons of both traditional teaching and online teaching method. The study shows that the blended learning strategy plays an important role in improving the achievements of Inclusive Education among teacher trainees. The Intelligence or Teaching aptitude of teacher trainees may affect the achievement of the teacher trainees, so both the groups were matched with respect to the covariate. It was found that the teacher trainees taught through the blended learning shows a substantial progress and has a positive impact on the achievement score as compared to the traditional teaching method when Intelligence and Teaching Aptitude was taken as a covariate. So a teacher should use blended leaning strategy in teaching in the classroom which can make her task easier and students can achieve better. The teacher trainees were having positive reaction for the blended learning; the only thing to be considered is the proper guidance and implementation of the blended learning module.

Educational Implications: The goal of blended learning is to unite the best features of in-class teaching with the best features of online learning, to promote active, self-directed learning opportunities for students. An instructional design for the blended learning strategy should naturally define the roles of the teacher and the students engaged in the instructional process.

As blended learning has helped in enhancing learning outcome by the easy accessibility; hence the teacher may use it for teacher trainees based on their needs and accessibility; The blended learning module helps in re-conceptualization of the learning paradigm which entails the incorporation of new pedagogies and learning theories (e.g., student-centered, social constructivism), the development of new understandings and knowledge through students' social interactions with a community of peers, and new roles of students (e.g., active author of content, self-paced learner) and teachers (e.g., mentors, facilitator & guide); The blended learning module helps in the transformation in curricula and its delivery system from Memorizing facts to

Inquiry based and Rigid delivery system (Fixed time & space) to open & flexible delivery system(Anytime & Anywhere).

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