

Transformation of Teacher Education in India with MOOCs; its Development and Validation over Lecture Method

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Abstract

For a developing country, like India, having huge diversity with respect to language, religion, region etc., it has been a challenging task to provide its young talented and aspiring minds an easy access to higher education based on equity and quality. Traditional classroom setup has been found inadequate to meet out requirements of learners. In such a scenario, emergence of MOOCs and development of several online digital platforms in India is proving a game changer of institutions of Higher Education. The first phase of the study involved the design and development of MOOCs for post graduate courses in Teacher Education Programme. The second phase comprised of evaluation of the effectiveness of MOOCs in blended mode over the traditional lecture method in Teacher Education Institutions in India and discussed how MOOCs through digital platform can provide a good alternate for traditional classroom setup. The third phase worked with the capacity Building of teachers by providing them training to design, develop and deliver MOOCs.

Key Terms: ICT based Pedagogy, MOOCs, Teacher Education.

The present research work is the result of major research project “ Capacity Building Programme of Teacher Educators at PG level in Haryana through Constructivist Pedagogy based MOOC approach; Design and development of e- learning course” with entire financial funding by ICSSR, Delhi.

Current Scenario of Indian Higher Education

All India Survey on Higher Education, 2017-18 by govt. of India, MHRD, New Delhi revealed that the number of universities has increased from 723 in 2013-14 to 903 in 2017-18 with an increase of almost 24.9%. Number of colleges has grown from 36,634 in 2013-14 to 39,050 in 2017-18 with an increase of almost 6.6 %. There is tremendous hike in number of students enrolment from 3,23,36,234 in 2013-14 to 3,66,42,378 in 2017-18 with a

surprised increase of 13.3%. Number of teachers has also increased from 12,47,453 in 2010-11 to 12,84,755 in 2017-18 with an increase of around 3% in 7 years, comparatively less as compared to strength of the students. Gross enrolment ratio(GER) also hiked from 23.0 to 25.8 % in 5 years. (Source: All India Survey on Higher Education, 2017-18 by govt. Of India, MHRD, New Delhi)

The increase in number of institutes is disproportionate to quality of education that is being dispersed. The unplanned over explosion in enrollment is one of the biggest downfall of Indian Higher education. Even in 21st century era, there are still challenges for stakeholders of education in term of income and gender imparity in enrolment, poor quality of faculty and teaching, lack of motivation and interest among students. The mismatch between education being imparted and requirement of the industry and lack of job orientation programmes are also haunting the higher education at present. Massive Open Online Courses can be researched upon as an opportunity to act as a panacea in this regard

Emerging Features of MOOCs

MOOC is a recent innovation and emerging trend in the field of teaching and learning and gaining popularity day by day all over the world. It dominates the existing traditional classroom practices and has several merits over it. Many leading institutions of the world are coming forward to develop and design the digital platforms to deliver MOOC for their students. It is golden opportunity for India to sense the potential of MOOC and work on it for removing all the hurdles and challenges in its effective implementation. The features of MOOC are worth mentioning here to throw light on its relevance now a day. Every word of the term 'MOOC' speaks about its usefulness. Some of the features are discussed here in brief:

1. Massive: It means its ability to cover a huge number of learners all around the world irrespective of their geographical location. It covers a huge variety of courses from lower classes to post graduation for free or a minimum cost. It has unlimited number of seats.
2. Open: It is accessible for everyone irrespective of age, language, culture, region, religion etc. Without any pre requirement.
3. Online: The course is delivered through digital platforms via internet. It eliminates the barrier of time and distance and offers flexibility to its learners.
4. Economical: Almost all the MOOC courses are provided for free throughout the world. Only limited fee is charged only for some certificates or diploma courses.
5. Interactive: The online lectures are supplemented by the reading material, videos, assessment tools like quiz, test, assignment etc. The variety of instruction using multimedia motivates the learners and arouses their interest in study. There is a provision for proper feedback by teachers and peers in discussion or user forum. It eliminates the rigidity of traditional classroom setup.

6. Flexible: It is the distinguished feature of MOOC course which enables the learners to learn as per their schedule and ease without any fixed schedule, unlike traditional classroom where everything is pre planned and schedules.
7. Personalization: It enables the learners to learn at their individual pace and satisfy their varying educational need and problems. Every learner has the full freedom to choose the course according to his interest and aptitude without any restriction.
8. Job orientation: MOOC also provides courses which has commercial values and helps learners get job after completing it. Learners gets a certificate or credits transferred to their courses which help in developing their professional skills.

Significance of the study:-

Higher Education in India is passing through a phase of unpredicted explosion in number of students every year. Also there is continuous and substantial expansion in the number of universities and institutes. It is still a big challenge for India to materialize the dreams of ever growing number of students and providing them equal opportunities for quality higher education. Access to higher education is still less than the minimum international threshold and distribution of institution throughout the country is skewed. Also the pupil teacher ratio is not up to the mark.

It is only through developing and adapting MOOCs in higher education that we can go ahead in achieving the triple objectives of access and expansion, equity and inclusion, quality and relevance. The most agreed definition of MOOCs is “online courses designed for large numbers of participants, accessible by anyone anywhere as long as they have an internet connection, open to everyone without entry qualification, and offer a full/complete course experience online for free”

Jansen and Schuwer 2015.

MOOC has huge potential to cater to all the problems related to access, equity and quality in higher education. Though India has started working on its own MOOC digital online platforms like SWAYAM, NPTEL, mokit etc. But still the requirements of a large number of students are unmet. It is high time when India should focus on developing and designing its own MOOC course providers and work on the challenges in its way to success. The positive ecosystem is developing in India for online education and MOOCs. The concept of Education is changing, learner is becoming life long learner. Moreover the increasing number of internet users in India has paved the way for supportive ecosystem for ICT based Pedagogy and MOOCs. So, it is felt to work in the direction of designing and developing MOOCs and working for evaluating their effectiveness over the traditional method.

Objectives 1. To design and develop E-learning material for the papers-Research Methods in Education for the P.G. class.

2. To design and develop E-learning material for the paper Data Analysis in Education for the P.G. class.
3. To design and develop E-learning material for the Introduction to Educational Research for the P.G. class .
4. To design and develop E-learning material for the Paper Advanced Educational Research for the P.G. class .
- 6 To Compare the effectiveness of Prepared E- Learning material through MOOC in blended mode with the conventional mode of teaching in the paper Advanced Educational Research.
- 7 To train and equip teachers in the use of MOOCs through Moodle.

Research Question: 1. There is no significant difference on the academic achievement scores of P.G. Teacher Education Students taught by lecture method and MOOCs

Research Plan:-1. Developmental Phase: Developmental phase of the research design includes the developmental process of MOOCs. MOOC course is developed based on the 4 Quadrants of SWAYAM that is, Developing e-tutorial, e-content, assessment and discussion forum. Free online courses were developed with the help of different softwares and applications such as Moodle, Presentation Tube Recorder, Screencastify, and Screencast-O-Matic v2.0.

1. Sites Developed:- www.rohtak.moodlecloud.com

Courses designed and developed : (1) Introduction to Educational Research
(2) Advanced Educational Research

2. Sites Developed:- www.courseproject1.moodlecloud.com

Courses designed and developed : (1) Research methods in Education-I
(2) Research methods in Education-II

3. Sites Developed:- www.coursepeoject2.moodlecloud.com

Courses designed and developed : (1) Data Analysis in Education-1
(2) Data Analysis in Education-II

All the six MOOCs were developed by using moodle as a Learning Management System.

2. **Experimental Phase:** Experimental phase is the execution of the experiment. In this phase, the experiment is conducted in an actual setting or environment i.e. On the students of M.Ed. 3rd semester from July-November 2019. For this experimentation, True Experimental Design : Two groups randomized subjects post test only design was used to carry out the Experimental phase.

Randomized Groups	Independent Variables	Post Test
Group I	Teaching through MOOC in blended mode	T ₂
Group II	Teaching through lecture method	T ₂

Variables of the Study

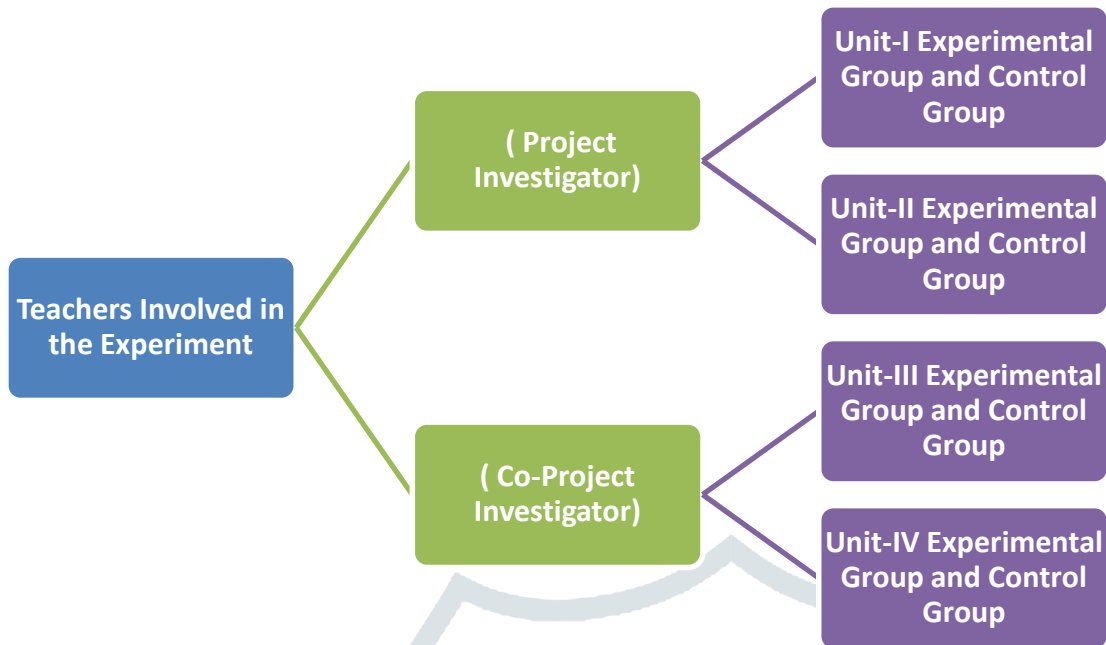
Independent Variable : Here the teaching method was considered as Independent Variable.

Dependent Variable :-Academic achievement in the subject Advanced Educational Research is considered as dependent variable for the present research work..

Intervening Variable : Intervening Variables or the interfering variables or the mediating variables are those variables which if not controlled may affect the results of the study. Here in the present research work, nature of the institute, class level, paper taught, teacher were the intervening variables which were controlled as situational variables.

Following substages have been conducted in this experiment.

1. Online enrollment of users in MOOCs.
2. Conduction of Experiment introductory class.
3. Conduction of Experiment.



Sample

As the present research work involved two groups, randomized subjects post test only design. The sample selected for the present research work was assigned to two groups; control group and experimental group by random technique. Students of M.Ed. 3rd Semester of Dept. Of Education, M.D.U. Rohtak were randomly assigned to two groups by using lottery method.

Tools Used

To collect the data in the post test, the researchers used achievement test for measuring the effect of treatments. This constructed test was an objective test comprising of multiple choice questions. The tool development involved two phases; Drafting of the test items and Final Phase of retaining and removing test items.

Statistical Techniques Used:-After conduction of post test, the results were statistically analyzed by using t-test for testing the significance of difference between two group means.

Just after the course completion of the paper, the post-test was administered on both the groups. The results of the post test were analysed by using t-test to achieve the objective to study the effectiveness of MOOCs in blended mode over the lecture method. The mean scores of the post test for both the groups and the calculated t-value for testing the significance of difference between the means is given below.

Table**Mean scores and t- value of Control group and Experimental group**

Randomly assigned Groups	No. Of students	Mean scores	Std Deviation	Degree of freedom	t -value
Experimental group	22	34	5.1	42	9.15
Control group	22	32			

*Significant

The above table revealed that the mean score of achievement in post test of the experimental group which is 34 and the corresponding mean score of the control group which is taught by lecture method is 32. The calculated value of t is 9.15 which exceeds the tabled t-value which is 2.71 at 1 % level of significance and for 42 degree of freedom. It can be stated that the difference in the mean scores for both the experimental and control group is significant and can not be attributed to by chance factors.

- Capacity Building Phase:-** Under this phase, after completion of the experiment, three training programs for the capacity building of teachers in design, development and delivery of MOOCs were conducted for the training of the teachers in three teacher training institutes of Haryana.

CONCLUSION:-Students who were taught with MOOC in Blended mode exhibit better academic performance if compared to students taught with traditional lecture. Teachers need to be equipped with ICT based pedagogy and development of MOOCs to support the digital initiatives by government of India and to address the three cardinal principles of higher education; i.e. Access, equity and quality.

Educational Implications:-

- The first stage of this project work involved the development of MOOCs for six Papers of post graduate Programmes of Teacher Education courses. This developed e- content may be used by the large number of learners at Post Graduate level in learning new knowledge and skills related to Research Methodology and Statistics in Research.
- In order to meet the three basic and cardinal principles of higher education; Access, Equity and Quality, MOOCs are being implemented by Indian government at all the levels of education i.e. At school, college and the university level. MOOCs promotes equality in the education system. The finding of this research work are going to support this mission of government of India as the evolving MOOCs need to be evaluated for their effectiveness for their better implementation.

3. SWAYAM- MOOC platform of India also accepts proposals for developing online courses by their national coordinators. So a good number of teachers received training to develop MOOCs on the same four quadrants as of SWAYAM. These trained teachers may support this mission of Indian government by working with the SWAYAM portal.
4. The human resources need to be capable in adequate design, development and delivery of MOOC courses. The result and the development process of MOOCs step by step in first stage of project work discussed and elaborated in detail may help in making them equipped with design, development and delivery of MOOCs.

Discussion of Results:- Gababri et al. (2017) worked on the Effectiveness of blended learning and e-learning modes of education on the academic performance of undergraduates in Kwara State, Nigeria, and the research results revealed that students' academic performance is better in blended mode than in traditional lecture mode. The study further revealed that undergraduate students' academic performance was increased when exposed to blended learning mode. It was recommended that the government and the authorities should encourage and support blended learning. As per Chea (2016), who developed an understanding of the changing trends in education system and considered MOOCs are the most recent innovation in the education system. The researchers focused on the benefits and challenges faced while offering MOOC. MOOC is massive, that is, available for a huge number of individuals and its openness attract many individuals but the drop out rate of individuals for completing the course is very low. This huge dropout rate in MOOCs is one of the main challenge.

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