MOOCs for Teachers’ Continuing Professional Development in India: A Review Paper

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Abstract. The process of Continuous Professional Development (CPD) let the teachers (like other professionals) reflect upon their expertise and maintain them by updating their knowledge continuously. With the emergence of Information and Communication Technology (ICT), the conventional mode of teacher professional development is confronted with challenges from the side of trending Massive open online course (MOOC) system to provide teacher professional development. MOOC system may prove to be an important tool for CPD. SWAYAM is the national platform for MOOCs in India. Proper frame for credit recognition and self-directed model will make MOOCs more advantageous. MOOC system into teacher professional development, however, is still proceeding, and there is a great need to carry out rigorous study on the potential, policy, quality and value of the application of MOOC to teacher professional development. Present study is a prospective study to analyse the application of MOOCs in CPD in India undertaking the four aspects. The study revealed that in the Indian context all the four aspects with varied intensity are pointing in the favours of this prospect. To deal with various potential obstacles, further data-driven experimental, comparative, longitudinal, correlational and follow-up researches are needed. The implications of these findings and recommendations for future research are discussed.

Keywords— Choice based credit system; Continuing Professional Development; Open Education Resource; India; MOOC; SWAYAM; Teacher Education

INTRODUCTION

Integration of technology is considered as most promising development in education. With globalization, the concept of learning and teaching has also undergone a great change. Technological usage in education provided a shift towards global learning environment and these significant changes have led to the emergence of the concept of MOOC. In 2011, MOOCs came alive on the educational academic front with a bang [1] led to the emergence of xMOOC, cMOOC, sMOOC, SPOC respectively and they rapidly and continually permeated the educational fabric at all the levels. MOOCs could be thought of as the evolutionary cousins of distance/online and can be visualized as an interactive version of open education resources such as Online Educational Resource (OER) but with MOOCs, the circle became complete as the learners could be assessed in the end. The largest MOOC providers are Coursera, Udacity, and EdX. Udacity has recently launched its Nano degree program offering graduation in technical subjects in under a year and the Nano degree plus, which even guarantees a job in the US in 6 months! Besides these initiatives, different countries like- Korea, Japan, Thailand, Malaysia etc. also made efforts to utilize the potentials of MOOCs. In India, there is an initiative from the side of Ministry of Human Resource Development (MHRD) with the name SWAYAM, i.e. Study Webs of Active Learning for Young Aspiring Minds for hosting online courses to cover education at all the levels especially, higher education and skill sector courses.
The concept of Continuing Professional Development (CPD) is gradually developed from in-service teacher training programmes which are less frequent, isolated and short-term training events. But in India, it is still treated as in-service teacher training programme. Such a restricted view gives no importance to voluntary and informal ways of teachers ‘learning and makes point those authorities to be the sole provider and decision-maker for CPD. Kothari commission (1964-66), The National Curriculum Framework 2005 (NCF, 2005), The National Knowledge Commission (NKC, 2007) emphasized the need of CPD to enhance teachers’ professional competences, standing and devotion to education. NCERT also provides certain in-service training programmes for the enrichment of teachers.

We have placed student at the center of education, but this does not mean that we may forget about the teacher. As education system is changing with a tremendous speed, teacher should not leave a hold on his professional development. MOOCs can do wonders here but there is a need to validate their effectiveness. So, the present study is a prospective study to review the feasibility of application of MOOCs for Teachers’ professional development in India. The review of literature indicated four aspects to be considered in this respect. Therefore, the present review reflected upon the potential, policy, quality and value of MOOCs for CPD of teachers based on figures provided, policy framework, quality assurance and value linked by authority. The review provided strengths and shortcomings of the considered aspects of MOOCs. Accordingly, proper measures could be taken to validate the utilization of MOOCs in CPD of teachers with respect to the present scenario in India.

**OBJECTIVE OF THE STUDY**

The objective of the present study is to analyze the prospects of application of MOOCs in CPD of teachers in India undertaking the four aspects: potential, policy, quality and value.

**LITERATURE REVIEW**

A plenty of studies have already been done worldwide on MOOCs and its application on different fields in last few years. Now is a high time to review its application to teacher education, so that, appropriate measures may be taken to get positive results. Some related studies are:

A study by Mackness, Waite, Roberts, & Lovegrove in [2] showed that small task-oriented MOOCs can effectively support professional development of open academic practice. Bali in [3] lists five reasons for the use of MOOCs by teachers for their professional development. According to him, use of MOOCs will help teachers to: 1) observe others teaching online, 2) join community that interests them, 3) e-live the student experience – online, 4) new learning in a structured way, and 5) find well-defined (mostly free) resources on a topic or sub-topic. Dillahunt, T., Wang, Z., Teasley, S. in [4] conducted an exploratory study on six Coursera courses offered by the University of Michigan and did comparative analysis of the target group (who self-identified as being unable to afford to pursue a formal education) and comparison group (other learners) in terms of demographics, motivations, course enrolment, engagement and performance. The demographic results also showed that the second highest percentage of target and comparison learners was from India. The comparison group had a significantly higher completion rate overall than the target group; the target group had a statistically significant higher rate of completing courses with certificates of distinction.

In 2015, a study by MIT-Harvard revealed that nearly 40 percent of the total learners of open online courses are teachers. Kovanic, V., Joksimovic, S., Gasevic, D., Siemens, G. and Hatala, M. in [1] performed content analysis of the research proposals on MOOCs and found that about 75% of researchers were from the field of education. A research by Alcorn, B., Christensen, G., and Kapur, D. in [5] has demonstrated that MOOCs enable less privileged groups to improve their career chances against lower investments than in formal higher education. Laurillard, D. conducted a study in [6], to assess the efficiency of an experimental MOOC course for teachers and revealed that problem of capacity building could be solved by MOOCs on a large scale across the range of skills they need. A case study was done by Goncalves, Vitor & Chumbo, Isabel & Torres, Esther and Goncalves, Bruno. in [7] under which a MOOC was developed and implemented in order to attract teachers towards this new way of sharing knowledge and at the end, the trainees have considered that its content was good quality and were adequate to their expectations. Padma Thiagarajan et. al. in [8] studied many countries, revealed that the exchange of ideas among the countries results into fruitful growth
and benefit for all. Karnouskos, S. in [9] identified a positive relationship between MOOC-empowered employee competencies and innovation. Anne-Mette Nortvig and René B. Christiansen in [10] did a literature review which concludes that collaboration on MOOCs can be advantageous in terms of ensuring quality and innovation in the common learning designs.

A Literature Review by Misra. P. K. in [11] revealed that spreading of MOOCs culture will benefit teaching fraternity as they evolve, practice and share new theories and practices for professional gains at individual level and in groups. Salisbury in [12] studied the influence of MOOCs which points that MOOCs have increased institutional consciousness and it upgraded the status of teaching as people are involved in evaluation, debate and visualization of the role of MOOCs in Higher education. Van de Oudeweetering, K., & Agirdag, O. in [13] did a systematic review and evaluated 31 empirical studies that pointed that there are fewer barriers to MOOCs than to higher education but there are barriers like lack of resources, prerequisite knowledge, internet, experience, culture etc. This study implies that underprivileged learners can still be successful in MOOCs.

The Literature review presented strengths of MOOCs as it supports academics, professional development, motivates, solve the problem of capacity building, causes sharing of ideas, and provide good quality content and fewer barriers. Researches also indicated regarding the active participation of Indians on MOOC platforms. In India, focus of MOOCs and MOOC studies are more concentrated in the field of engineering. So, now is the time to study the significance and possibility of MOOC based CPD of teachers.

NEED OF THE STUDY

TESS-India has developed an MOOC Enhancing Teacher Education through OER: TESS-India" in English and then in Hindi Medium on Edx Platform. About 846 Teacher Educators Teachers from various TEIs i.e. VISE, SISE, CTE and DIET across the state have completed the course in English and 1600 have completed the MOOC in Hindi from Madhya Pradesh. The course explored how the teacher educators and teachers may experience self-learning, reflection, assimilation and articulation of new ideas and found positive results [14].

The SWAYAM is the Government of India initiatives with three cardinal principal of Education Policy - access, equity and quality. In order to ensure best quality content is produced and delivered, nine National Coordinators have been appointed: They are AICTE for self-paced and international courses, NPTEL for engineering, UGC for non-technical post-graduation education, CEC for under-graduate education, NCERT & NIOS for school education, IGNOU for out of the school students, IIMB for management studies and NITTTR for teacher training programme [15]. Under Program category, D.El.Ed course by NIOS consists of 5 papers and NITTTR has 6 upcoming courses related to teacher education. So, it is expected that NITTTR and NIOS may help to enhance the quality of teaching and skill India dream can be materialized with the help of SWAYAM in the direction of teachers’ professional development. But, here the concern is that all the upcoming 6 courses (Student assessment and evaluation, e-content development, Redefining Laboratory instruction using virtual laboratory, OER for empowering teachers, Quality assurance in engineering and transforming instruction through blended classroom) by NITTTR are available in English only with very low enrolments as compare to the D.El.Ed course by NIOS papers that are available in both Hindi and English with huge number of enrolments. Hence, it points towards the language barrier and doubts the feasibility of MOOCs in teachers’ CPD in India.

METHODOLOGY

The literature search for this review was conducted for many days. Three databases, ERIC, ScienceDirect and Google Scholar, were chosen for the quality, reliability and the relevance of their sources. To get a broader scope of literature, MOOC was used as a key term in ScienceDirect which provided 1634 results and as search education resources’ in ERIC which provided 880 results. The articles appeared were from the varied fields and most of them were irrelevant as per the need. Then filter for social science domain was added in the literature search. The searches yielded 318 articles in ScienceDirect and 91 articles in ERIC with some overlaps. To amplify the selection of literature, Google Scholar was searched for MOOC in teacher education, —MOOC in Continuous professional development,
MOOC in India, and SWAYAM MOOC. The criteria for the selection of articles were that - (a) it is concerned with the CPD of teachers (b) it is concerned with an empirical research. (c) it is concerned with a literature review. The criteria for selection of articles led to the relevant articles highlighting different aspects of MOOCs for CPD of teachers. The present review is based on the study of many research papers and other related content published between 2013 to 2018.

APPLICATION FEASIBILITY OF MOOCS IN TEACHERS’ CPD IN INDIA.

MOOC is a hot topic but it is still a newcomer in CPD. The feasibility of its application in CPD could be evaluated by dealing questions from four most influential perspectives, including MOOC- potential, policy, quality, and value.

Potential

Potential of MOOCs in CPD reflects its position and prospects in a particular field in the near future. Potential of the MOOCs in India can be realized by the given statements: According to Richard Levin (Economic Times, 2014), CEO of Coursera India is the second largest user base already with 800,000 students registered. 2012 became Year of the MOOC worldwide and within two years India was able to stand second in the row of MOOC users.

In Figure 1, (a) shows the tremendous increase in number of registrations on SWAYAM platform since 9th July, 2017 which reflects the speedy progress in its popularity. This implies the provision of mass education, teaching by experts, organized content, skill development, advanced curriculum, professional certification and life-long learning. And (b) shows that how the numbers of courses gained momentum which clearly indicates the active participation of different institutions. As the different institutions participate actively, it would enhance the quality of MOOCs and interest of the learners, benefit the learners and MOOCs mutually, cover more topics and bigger audience.

![Number of Registration](image1.png)  ![Number of Courses](image2.png)

**FIGURE 1.** (a) Increase in number of registrations on SWAYAM platform since 9th July, 2017; (b) Increase in number of courses on SWAYAM platform since 9th July, 2017 [15].

Each paper of D.El.Ed. Course has got above 190000 enrolments for its first cycle that started in October 2017. Now, these course papers have entered their new cycle from February 2018 and most of the course papers have already got enrolments around 150000. Such huge enrolments reflect the potential of MOOCs for CPD in India.
The status of teachers is rising in the society and related educational degrees are becoming desirable. The expectations are also increasing on the part of teachers. To maintain the standard to take care of the expectations and needs of the society, teachers need to be in a framework and this framework is based on the policies framed by the authority. In India, National Council of Teacher Education (NCTE) has ultimate say in teacher education and its policies. Development of appropriate policies at Governmental and institutional levels is need of the hour to motivate individual institution to develop their own MOOCs for CPD. Indian Government funded many MOOC initiatives like NPTEL, SWAYAM, MooKIT etc. but most of the MOOCs are in the engineering field which leaves a little scope for teacher education field. Under SWAYAM, NITTTR is responsible to develop MOOCs for teacher education and running six courses currently which are very general or more inclined towards engineering education. CIET developed an ICT curriculum for school teachers consists of a special lecture on Exploring MOOCS as a space for continuous learning [16]. Digital India Programme ensures availability of high speed internet which is a must for MOOC [17].

Launch of these initiatives shows the clear intentions of Government and institutions that they observe MOOC as a supporting platform to cause professional development of teaching community. The supportive policies from the Government provide necessary grants and contributions from the MOOC consumers, especially teachers, will guarantee its quality.

Quality

The quality of MOOCs largely depends on the funds provided and its characteristics as proper funds allow the responsible agency to work on the characteristics of the MOOC to make it much more effective [18]. The effectiveness of MOOC in teacher education development is the core concern as many researchers indicated doubt on their long-term effectiveness over traditional teaching. With MOOC, every education-related party can contribute to its quality improvement. The online learning management systems, together with electronic evaluation folder, have won over lots of teachers. MOOC provides a new platform for teachers to demonstrate, maintain, and evaluate their career proficiency [19]. To create and develop MOOCs, a whole new job category of course developers has evolved where professors collaborate with course developers to design courses for quality student experience, sans the web developer [20].

In SWAYAM, MHRD has identified National MOOC coordinators and their sectors. Each step of a MOOC production follows strong guidelines which require rigorous exercise on the part of National Coordinators (NC). (Constitute of Academic Advisory Council (AAC) & Subject Matter Expert Groups (SMEGs)) to maintain the quality. The SWAYAM is based on a 4-quadrant approach means MOOC e-learning system should essentially consists of components of e-Tutorial, e-Content, Web Resources and Self-Assessment [21].

MOOC, as an upgraded online learning system, performs much better in objective setting, content normalizing, methodology designing, and program evaluating. Therefore, it can provide a good service for teacher professional development.

Value

The value of MOOC can be viewed in terms of professional and social recognition as with the professional development of a teacher, there lays a base for social reform in the society. According to Bill & Mary (2008), the virtual learning society could help teachers reflect on their professional development and could lead to social reform ultimately [22]. The ultimate beneficiary of In-Service Teacher Professional Development (ITPD) is student though the receiver is teacher. So, it has great value but there is always a doubt regarding the value of its completion as most of the MOOC programmes offer only a badge, certificate or a verified certificate for a fee after appearing in a proctored exam [23].

All the teacher professional development programs aim to secure teaching quality by developing teachers' knowledge and skills on curricula setting, teaching methods and social environment. Besides the necessary knowledge, skills and strategies, teachers need to reflect on their own education practices, which is essential for their life-long learning. Teachers require continuous content and pedagogic enrichment to address the diverse needs of children in their classrooms so that their learning outcomes will be improve and MOOC can fulfil this requirement.
CONCLUSION

The prospects of application of MOOCs in Teachers’ CPD in India surely depend on these aspects i.e. potential, policy, quality, and value. MOOC has demonstrated its potential in teacher professional development by gaining such huge number of enrolments in D.El.Ed course by NIOS but low enrolments in NITTTR courses need to be addressed. The language barrier affects the learning results and teachers’ learning interest as most of the MOOCs available are in English. Multilingual MOOCs are required to serve the broader audience. Though SWAYAM is based on a 4-quadrant approach and have National coordinators to maintain the quality of MOOCs as there some specialists are designing and developing MOOC courses but the quality and variety of MOOC courses still cannot meet the demand of teachers with different characteristics, disciplines and districts, and there are still a lot to do for the preparation of professional, practical and handy teacher education courses. The MOOC platforms in India are inclined towards engineering subjects and that leaves a small scope for MOOCs in CPD. Hence, the lack of initiative may affect the quality and quantity of MOOC course resources in the field of CPD. MOOC is promising for its cMOOC framework, connectivism base, scientific evaluation and certifications [14] but the long-term effectiveness and sustainability of MOOC are still debatable. To make the MOOC advantageous over traditional classes, there is a need of further improved policy framework for the proper course accreditation, credit recognition and funding. The application of MOOC in teachers’ CPD is of great value as it may help in lifelong learning and cause mutual benefit to both teachers and MOOC. The continuous learning is imperative as teachers should not lag behind due to continuous expansion of knowledge in the field of teacher education. Teachers may enhance their proficiency and MOOC may expand its users through the help of teachers. SWAYAM is a unified scheme in higher education domain, meant to meet the tailored demand of choice-based credit system (CBCS) at undergraduate level by providing an advanced curriculum and professional certification. And now it should be extended to higher level. The application of MOOC in CPD is still in the empirical stage. Generally, positive student experiences have been reported for MOOC-blended model but in case of teachers, this model may not work due to time-constraint. So, self-directed model is needed for CPD. CPD activities should be spread over a period of time to cause collaborative and active learning. CPD activities should include periods of practice, coaching and follow-up to promote reflective practice, encourage experimentation and respond to teachers’ needs [24].

FUTURE RESEARCH

Data-driven research can be conducted separately on four aspects of MOOCs discussed above to check their effectiveness in other fields. Correlational studies can be carried out to show the relation between different variables and the effectiveness of MOOC. Longitudinal researches can be conducted to identify the value of MOOCs in terms of lifelong learning and social reform. Follow-up studies can also be done to check the aspirations, success rate and employability of the MOOC learners. Teachers’ CPD MOOCs on different platforms can be compared. As cMOOC framework and standardized learning accreditation were recommended but did not bring ideal results, still need further investigation. Self–directed Model of MOOC especially for CPD of teachers can be mapped.

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