mobiMOOC: A Personal Tutor For Modern ICT

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Abstract: MOOC is a Massive Open Online course using innovative teaching methods which can benefit the people across the globe. This is more popular among educational professionals and technical people. With the universities finding shortfall in the resources, MOOC provide the enormous opportunities for the people who hunt for the education. Mostly MOOCs are designed for the desktop based applications and not finds compatible with the mobile. Hence to fill up the gap, we will be implementing the mobiMOOC system as a personal tutor. In this paper, we explain the basics of MOOCs, MOOCs in India, MobiMOOCs – our approach, challenges, key putups and implementation in India.

Keywords: MOOC, Higher education, flipped classroom, MobiMOOC, xMOOC, cMOOC, DOCC, BOOC, SMOC, SPOC

I. INTRODUCTION

As social media and mobile devices has taken control on recent era, there is a huge question how to enhance the teaching learning process and to find the new possibilities based upon the technology. Massive Open Online Course (MOOC) is one of the emerging technologies in the field of higher education which can boost the technical knowledge at click of the finger. They represent a new generation of online education, freely accessible on the internet and geared towards very large student numbers [1]. MOOC helps to connect many tutors and learners from corner to corner for a common topic or field of interest. They allow single tutor to teach thousands and thousands of students across the globe.

MOOCs are available online for free or some nominal charge is charged for certificate and award. MOOC courses don’t have any requirements and the people of all ages can get benefited out of this. The MOOC is designed for network learning and is also termed as Connectivism MOOC (cMOOC). Generally MOOC falls under six categories:

- **cMOOCs** – driven by interaction with the students. Learning is based on discussion and collaboration. This is less structured. This course has a few daily prompts, but there’s no set syllabus or quizzes to test whether you understand a prescribed set of information or possess certain skills.
- **xMOOCs** (Intructivist MOOCs) – The content based MOOCs follow the traditional method of teaching. An instructor creates a syllabus and provides regular set information.
- **DOCC** – Distributed Open Collaborative Course is same course materials are distributed to students at different institutions.
- **BOOC** – a Big Open Online Course is similar to traditional MOOC, but limited to smaller number of students (around 50).
- **SMOC** – Synchronous Massive Online Courses include the lectures with live broadcast. This type of MOOC requires students to be online at specific times.
- **SPOC** – Small Private Online Courses similar to BOOC are usually used as a supplement of F2F classes. This type is closely connected to flipped education.

In this paper we present a type of MOOC where we named as mobiMOOC which can increase the educational quality for variety of learners through ubiquity.
It is found that the maximum MOOC courses are not designed keeping mobile in the mind, which creates a gap for wide learners. Here we build a Massive Open Online Course on a mobile (mLearning) which can access data via mobile and we found that there is 53% temporal independence than the previous MOOCs available. The main goal of mobiMOOC is getting you up-to-date with mobile learning and providing you the tools to plan, develop and implement a mobile learning solution in your environment via collaboratively discussing and exchanging knowledge through a variety of learning activities.

II. LITERATURE REVIEW

The idea of MOOC began from the Open Educational Resources (OER). The term MOOC was coined in 2008 by Canadians George Siemens, Stephen Downes and Dave Cornier. This new type of learning led Stanford University to launch three online courses in 2011. This has attracted many students, thus turning a qualitative increase in the ground of MOOC. Motivated by the success of the Stanford MOOCs Sebastian Thrun and Peter Norvig started the MOOC business models and launched Udacity in 2012. Two other Stanford professors Daphne Koller and Andrew have also started their own company Coursera which aligned with number of renowned universities to provide a stage for online courses aiming at offering high quality education to interested learners all over the globe. After this Massachusetts Institute of Technology (MIT) and Harvard University launched edX which received huge attraction among the youngsters.

Researchers believe that the MOOC cannot replace the traditional approach of teaching. As a result there is increase in hybrib MOOCs. Szafir and Mutlu, introduced this hybrid MOOC to encourage the slow learners. Vihavainen, et al. (2012) offered bMOOCs which provide continuous interaction between the tutor and the learner. McCallum, Thomas and Libarkin developed alpha MOOCs (aMOOCs) as a fusion of cMOOCs and xMOOCs by building collaboration teams. McAndrew (2013) developed a project-based MOOC (pMOOC) which provides project for every chapter of the course. Bruff, et al focused on skill based design, self-paced learning, flipped learning method as well as open network communication that avoided drop out from the course.

<table>
<thead>
<tr>
<th>Compare Item</th>
<th>edX</th>
<th>Course Era</th>
<th>CCK08</th>
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<td>Learning Theory</td>
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<td>Connectivism</td>
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<td>Behaviorism</td>
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<td>Cognitivist</td>
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<td>Social constructivism</td>
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<td>Assessment</td>
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<td>E-Assessment</td>
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<td>Peer-Assessment</td>
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<td>Self-Assessment</td>
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<td>Download Material</td>
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<td>Formal Learning</td>
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<td>Informal Learning</td>
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<td>Form</td>
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<td>Video Lecture</td>
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<tr>
<td>Face-to-Face</td>
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<td>Learning Tool</td>
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<tr>
<td>Lecture Note, PPT and PDF</td>
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</table>

* Fully supported
- Not supported
III. METHODOLOGY

Mostly MOOCs are designed for the desktop based application which is far from the reach of present generation. We apply the mobile based application which we named it as “mobiMOOC” along with the Bloom’s taxonomy, where the students are provided with the individual tutor through live chat. Mobiles are frequently used by the present generation and can be used on the go. Additionally the mobile users can access the data regularly than the non-mobile users which leads to increased understandability. Self-learning process was more efficient than the conventional method. Mobile users can access the application anytime and anywhere which is the major advantage of our methodology. We are concerned about the outcome of the students based on specific learning objective after participating in MOOC. For this, students were interviewed to rate their learning skills in the five areas of modified Blooms taxonomy.

The following model (LO/IO/HO) is set for the staff to apply the idea while interacting with the student through mobile application.

\( LO \) – LOCQ – Lower order cognitive questions – covering questions for testing the \textit{remembrance and understandability} of the concepts of the students to find identify and describe the nature of the question/situation.

\( IO \) – IOCQ – Intermediate order cognitive questions- Covering questions that test the \textit{applying and analyzing} skills of students with the use of audio, phonics, dictionary, thesaurus and live chat.

\( HO \) – HOCQ – Higher order cognitive questions- Testing the \textit{evaluating and creating} abilities of the students through self test, judge, defend and criticize themselves and to modify to meet the desired.

At every level, the student can approach the tutor for correcting and taking their suggestions. Through this the level of clarity is kept maximum and the confusion is kept minimal.

\( 1.1 \) Illustration of Our Methodology

In the following Table II, examples of the application of Blooms Taxonomy with our approach (Personal Tutor) for a English language in setting a few typical questions are given:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Question</th>
<th>Classification as per Blooms Taxonomy</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily life situation and questions based on it.</td>
<td>Identify, Find, Define, Describe and memorize</td>
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<td>2</td>
<td>Explain the situation in terms of conversation.</td>
<td>Interpretation, Summarize, Explanation, Discussion.</td>
<td></td>
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<tr>
<td>3</td>
<td>Create the same situation with third person and make conversation.</td>
<td>Application of information</td>
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<tr>
<td>4</td>
<td>Generate the new topic for conversation along with the current discussion.</td>
<td>Creation of new using available information</td>
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<tr>
<td>5</td>
<td>Compare the discussion made with tutor and with the third person</td>
<td>Examine, Modification, Recreate, Judge and Give rating</td>
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</tbody>
</table>

IV. ISSUES AND CHALLENGES IN MOOC

The awareness of MOOCs has raised many concerns and criticisms in field of education. This section investigates issues relating to MOOCs for higher education.

\( 1.2 \) Sustainability

As much type of MOOC courses came into existence in the recent years, it is not yet clear how this MOOC approach will make money through online. Many MOOC courses do not have clear modules and are commonly following silicon Valley start-ups [3] and worry about the revenue later.
MOOC causes many institutions to re-examine online distance learning and judge how the technology can be used for efficient and reach the market fast.

1.3 Pedagogy

MOOCs have encouraged many pedagogical approaches in the area of teaching learning process. The present approach of MOOCs is similar to the traditional approach based on video lectures, power point presentation, written lectures, e-assessment and feedback. There are two major concerns regarding the pedagogy for the MOOCs.

- Do the MOOCs follow sound pedagogy and structured approach that leads to quality outcomes?
- What new pedagogies are required if MOOC are to deliver a high quality teaching learning experience?

Hence there is a belief that MOOC cannot entirely replace traditional teaching approach. As a result of which there is increase in hybrid approach.

1.4 Assessment

The capability to assess enormous number of learners in MOOCs is certainly a big challenge. Thus, assessment plays an important role in success of MOOC. There are two main types of assessment in MOOCs, namely, peer-assessment, and self-assessment, which is used in mobiMOOC.

1.4.1 Peer-Assessment

Peer-assessment is used in cMOOCs and xMOOCs for reviewing essays, projects, and team work. These assignments are not graded automatically, but learners themselves can evaluate and provide feedback on each theirs/other’s work. This method of assessment is suitable in for all courses. But it is found that some learners in peer-assessment grade without reading the work to be reviewed or do not follow a clear grading scheme, which negatively impacts the quality of the given feedback.

1.4.2 Self-Assessment

Self-assessment is still not extensively used in MOOCs. These include mock-up answer as instrument to students to cross check whether marks scored by them are in sync with the mock-up answers set by the teachers where the learners can self-reflect on their achievements.

V. RECOMMENDATIONS

- Hybrid/Blended MOOC can be effective tool than traditional teaching learning process.
- MOOC can be implemented along with flipped classroom experience.

VI. CONCLUSION

MOOC provides a new way of online learning that has attracted many technocrats and young generation. In India, the number of students getting enrolled in the online courses is minimum and hence government is taking necessary steps to take a benefit of the free MOOC courses.

The main aim of this paper is to provide the new approach for self learning and to analyze the state-of-the-art their learning ability through continuous learning process.
In fact, most of the MOOC follow a top-down approach which is teacher-centric and centralized learning model. In our approach we attempt to implement bottom-up, student-centric and flipped base.

REFERENCES


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AUTHOR’S PROFILE

Dr. Anjana R received her Master’s in VLSI Design from Vellore institute of Technology, Vellore and Bachelors from Anna University, Chennai and PhD from Dr. K. N. Modi University. She has an IT experience of 2 years in eLearning Domain and currently working has Assistant Professor in Electrical Dept. in Laxmi institute of technology, Gujarat. She has published more than 20 papers in International journals and conferences. Her area of Interests include Low power VLSI, Domino Logics, Digital circuits.

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