Massive Open Online Courses - Enhancement to edX-platform

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Outline

Introduction to MOOC

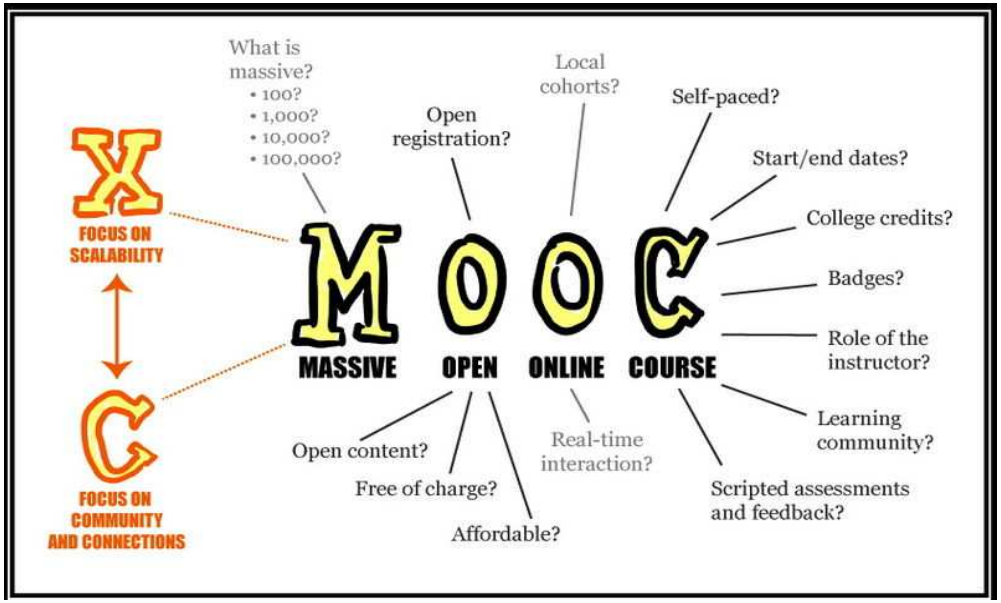


Figure: [1]

- *Massive:* Unlimited participants. [1]
- *Open:* Free, not limited by geography, accessible, no prerequisites, content is shared.
- *Online:* Internet based; may also work with mobile technology.
- *Courses:* Learning is involved, but grading and other traditional expecations are usually NOT.

Advantages of MOOC

- Aims at a large-scale interactive participation of users with the help of web.
- Various features like videos, study materials, quizzes and online exams and trying to make it more efficient than traditional education system.
- Free access to organized content.
- Students can make global connections.
- Offer quality education to the most remote corners of the world.
- Help people further their careers.
- Help people expand intellectual and personal networks with strong communities.
- Learner can use any online tool that are relevant.

Advantages of MOOC(cont.)

- People have no access to former higher education, can participate.
- Informal and can be organized easily.
- Learning will be possible by the collaboration of learners and instructors.
- Supports career opportunities.

Challenges of MOOC

- Accredation
- Self regulation and motivation
- High dropout rate
- Assuring academic integrity
- Learning analytics
- Automated grading
- Standards and grading

Existing MOOC Systems

- Eliademy
- Coursera
- Udacity
- edX
- etc

Outline

Open source LMSs

• Moodle	• .LRT(dot learn)
• eFront	• Dokeos
• Sakai	• ATutor
• Canvas by Instructor	• Chamilo
• Fedena	• ILIAS
• OLAT	• Totara LMS
• Claroline	• etc

Proprietary LMSs

• Blackboard Learning System • Edmodo • Informetica • My Big Campus • Sclipo • SharePointLMS	• Desire2Learn • eCollege • JoomlaLMS • Ning(website) • Glow(Scottish Schools National Internet) • etc

Concluded features from feature based survey

• Learning Paths	• PowerPoint presentation authoring
• Better Navigations	• SMS alerts
• Self Paced Learning	• Mobile Access
• Offline Learning	• Competency Management

Adaptation of Leraning Styles into LMS

- One's learning preference.
- Every one has their own learning style.
- Teachers can assess the learning styles of students then they can adapt the classroom methods to suit each student.
- General learning styles: Visual, Auditory, Kinesthetic/tactile.
- Why we considering these learning styles?
- To increase the successful completion rate.

David Kolbs model

- Converger: Good at making practical applications, solving problems
- Diverger: Good at Imagination and come up with new ideas
- Assimilator: Good at inductive reasoning and creating theoretical models.
- Accommodator: They learns by doing things and engaging with others actively.

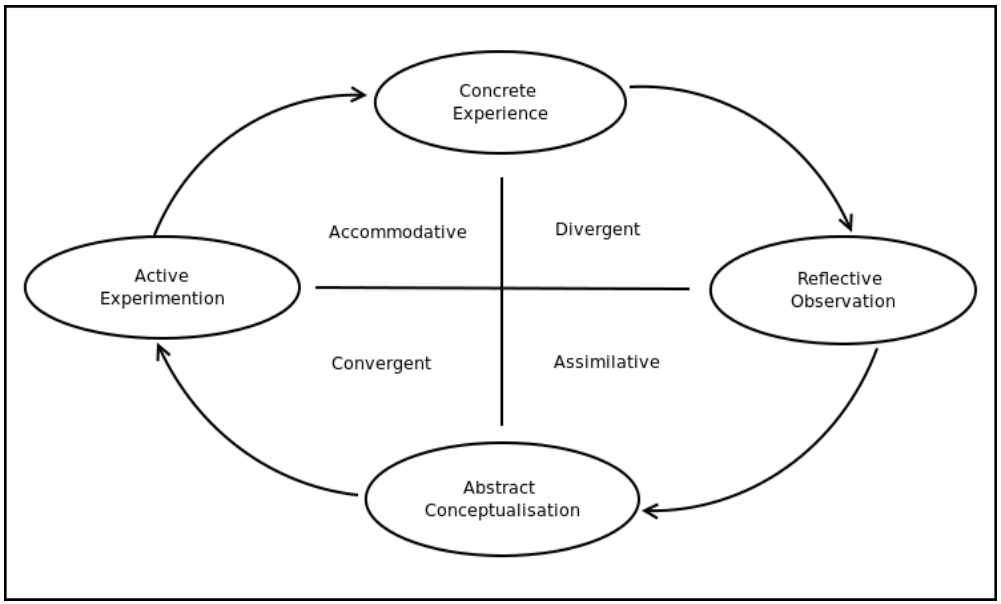


Figure: David Kolbs Learning Style Model

The Felder-Silverman Learning model

- Sensing Learners/Intuitive learners:

Sensing Learners	Intuitive Learners
• Like to learn facts	• Like to discover possibilities and relationships
• Solves problems by well established methods	• Likes innovation and dislikes repetition
• Patient with details and good at memorization	• Good at grasping new concepts
• More practical and careful	• Work faster and innovative
• Do things which are related to real world	• Do not like things which has memorization needs

The Felder-Silverman Learning model(cont.)

- Active Learners/Reflective Learners:

Active Learners	Reflective Learners
• Learn by doing something active with it	• Prefer to think about it firstly
• Study in a group	• Prefer to work alone
• Always retain information better	• Thinks about new information
• Problem solving activities	• Write short summaries of readings

The Felder-Silverman Learning model(cont.)

- Sequential Learners/Global learners:

Sequential Learners	Global Learners
• They try to understand things in sequential steps • Follows logical stepwise paths in finding solutions	• Learn in large jumps with out seeing connections • They solves the problem quickely by getting big picture and grouping all the data but they will fail to explain how they did it.

The Felder-Silverman Learning model(cont.)

- Visual Learners/Verbal Learners:
  - Visual Learners: Remember the things best by watching pictures, diagrams, flow, films, and demonstrations.
  - Verbal Learners: Learns more from written and spoken explanations

Neil Flemings VAK/VARK model

1. Visual learners: think in pictures; visual aids such as overhead slides, diagrams, handouts, etc.
2. Auditory learners: lectures, discussions, tapes, etc
3. Reading-Writing Preference learners: by reading and writing.
4. Kinaesthetic learners or tactile learners: active exploration of the world; science projects; experiments, etc.

Conclusion of the learning styles

- Visual learners: Learns from pictorial representations and visual things
- Reading-writing preference learners: Learns from reading a lot of materials
- Experimental learners: Learns from by doing something active with it.

Conclusion of the learning stylescont.

Finding learning styles will be done by providing some questionarie to student at the time of course registration.

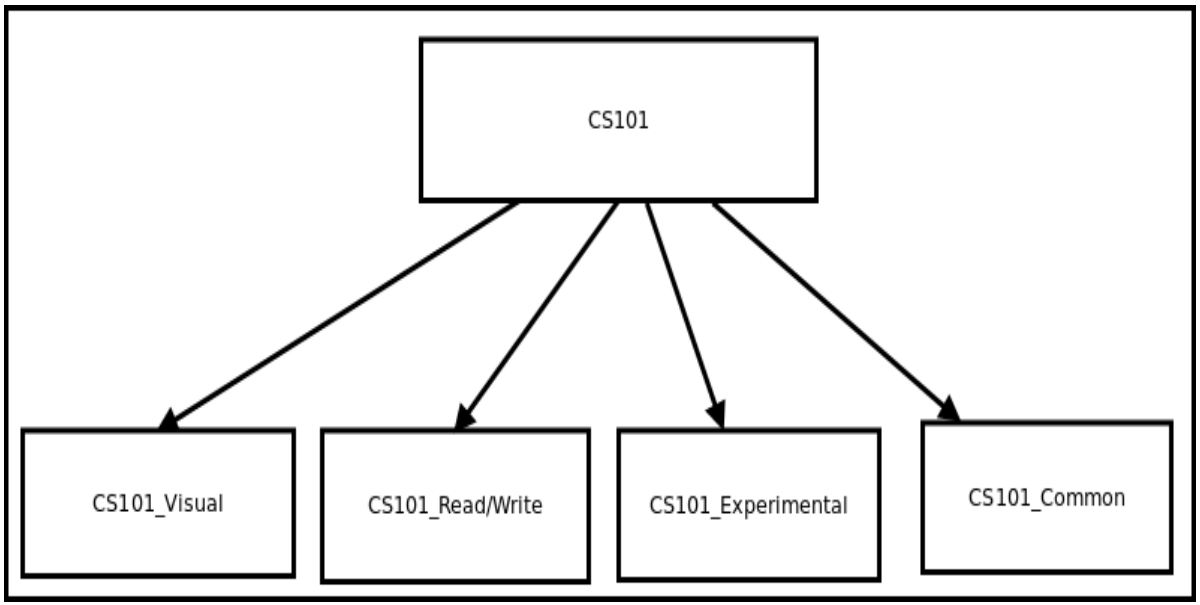


Figure: Proposed approach for adaption of learning style in LMS

Outline

Introduction to edX

- edX is a non-profit organization which is founded by the collaboration of Harward and MIT.
- Open Source platform.
- Trying to make more effective than the traditional education.
- Developed based Django Framework.
- Python, Ruby, Perl, NodeJS.
- Datbase: MongoDB and SQLite.
- Developed as different modules and integrated later.

Main Modules of edX-MOOC

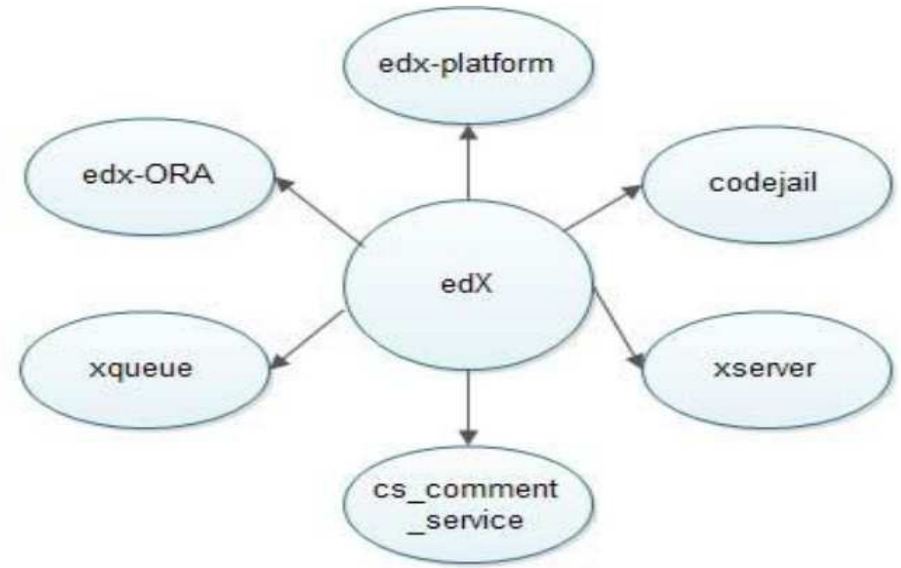


Figure: Main Modules of edX-MOOC

Extra Modules of edX-MOOC

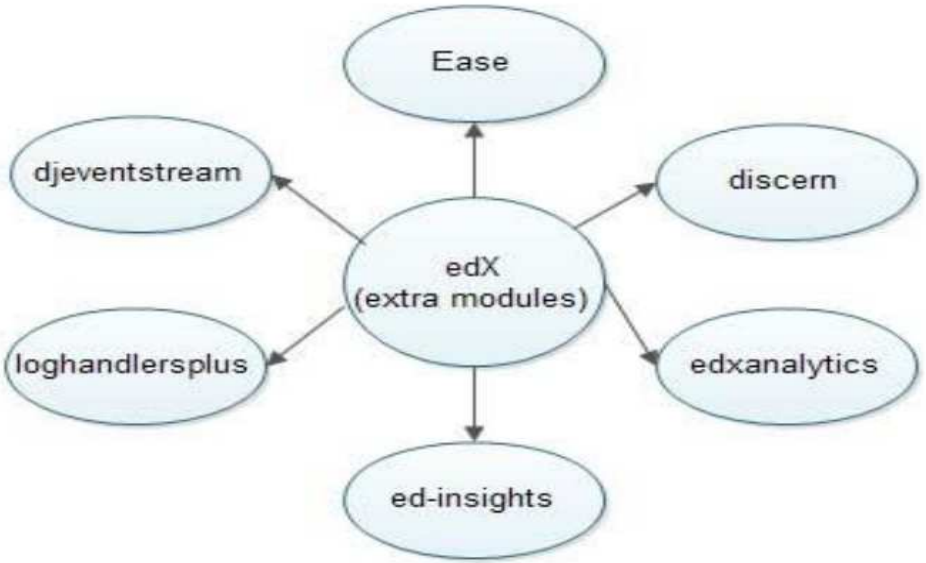


Figure: Extra Modules of edX-MOOC

edX - Learning Management System

Some features of edX-LMS

• Self-paced learning	• Online discussion groups
• Online Test and assignments	• Circuit schematic builder
• Subtitles of videos	• Saved sessions
• Search	• Registering and unregistering of the courses
• Activation emails	• Essay Assessments
• No of students enrolled in a course	• Recommended courses

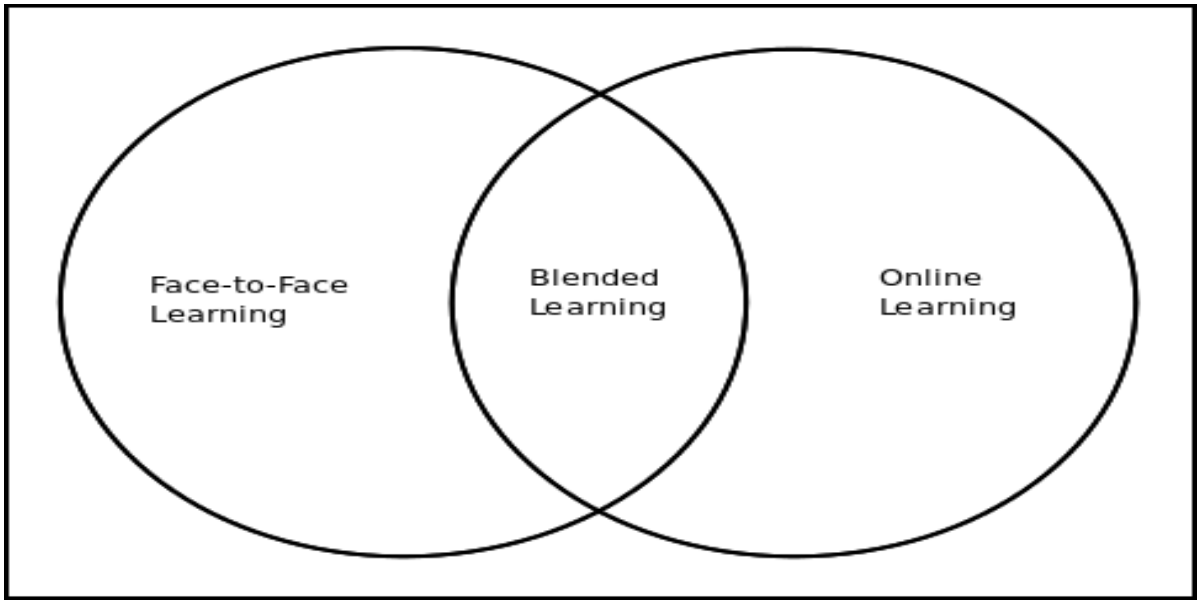
edX - Course Management System

Some features of edX-CMS

• Adding Videos	• Creating Assignments
• Import & Export Course	• Add Course Team
• Live View & Preview	• Adding Grading Policy
• Course Updates	• Uploading Static Pages

Outline

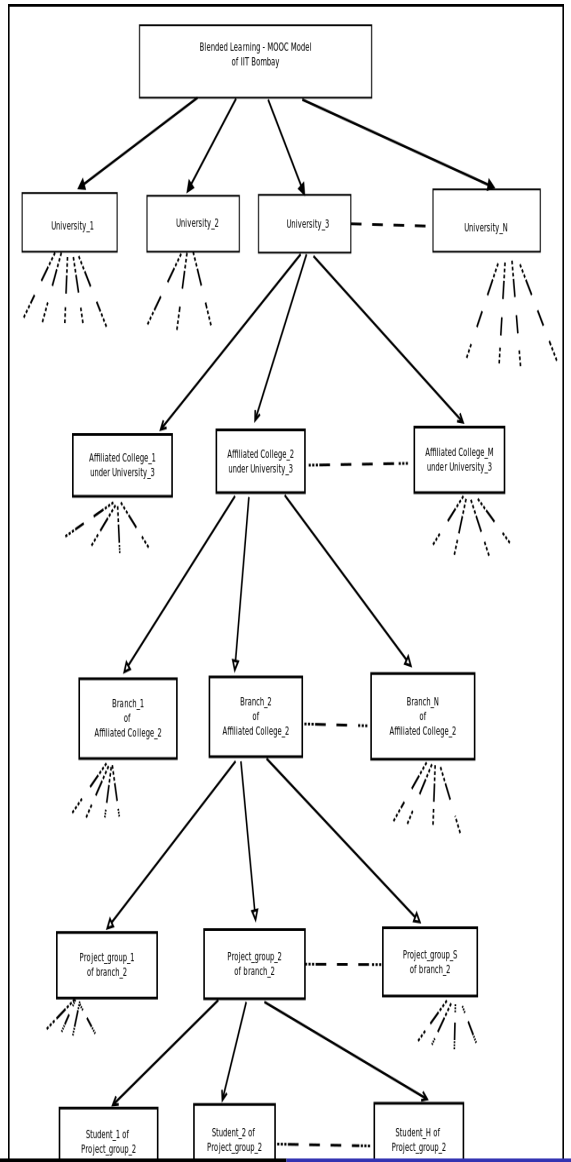
Blended Learning



Sequential steps of our model

- CS101-Computer Programming and Utilization from IIT Bombay.
- Approaches different colleges in India with our proposal.
- Proposal: students from agreed universities must opt this course, it is mandatory under predefined term of conditions.
- Training of local instructors, face-to-face interaction with super-instructor.
- Training includes, introduction to Unix OS, programming tutorials, grading system, etc
- Entire information related to CS101-course will be given by IIT Bombay.
- Assignments, quizzes, finalexams by IIT Bombay.
- Peer-to-Peer evaluation - Prof. Deepak B. Phatak followed this approach when he offered CS101 in IIT Bombay.
- 80% marks from IIT Bombay, 20% marks will be given by local instructor.
- Final grades will be sent to respective colleges.
- Grading can be either automated or Peer-to-Peer grading.

Heirarchy of Our Model



Advantages of Our Model

- Elimination of duplicate work for local instructor.
- Local instructor-student interaction time will be increased.
- A better training for local instructors from super-instructor.
- Better teaching.
- Better learning.
- Successful completion rate can be increased(99%).
- Minimum pass grade.

Challenges of Our Model

- Does edX-MOOC supports our model ?
- Architectural, Technical, Administrational issues.
- What database tables need to be created, what to be modified ?
- Implementation, testing, deployment.
- Assurance of academic integrity
- Automated grading.

Outline

Motivation

- Main aim is to provide quality education all over the world.
- The dropout rate.
- Throughput of the e-learning industry is very low.
- To improve successful completion rate of a course.
- Our model "Blended Learning - MOOC Model of IIT Bombay", learning style into edX-MOOC and our model, few concluded features from feature-based survey.

Problem Statement

- Implementation of Blended Learning - MOOC Model of IIT Bombay
- Integration of all modules of edX-MOOC(cs comments service, codejail, xqueue, xserver, edX-ORA, ed-insights, edxanalytics, discern, loghandler-splus, ease, djeventstream, xblock)
- If time permits us after the completion of above tasks, we will consider the following issues also.
  - Adaptation of Leraning Styles into edX-MOOC and our model also.
  - Implementation of following features.

References I


MOOC.
http://en.wikipedia.org/wiki/file:moocpostermathplourde.jpg.Referredon25August,2013.