ISSN 2456-2637

Continuous Engagement and Evaluationof a learner in ODL

Ambuja Salgaonkar, **Manisha Divate**
Department of Computer Science, University of Mumbai, Mumbai

Abstract

Alearner (l) who is unable to attend regular school, opts for Distance learning (DL). DL happens partly through traditional classroom teaching under personal contact programme (PCP) and remaining, depending on printed self learning material (SLM) that l consumes aynchronously at her own pace. An emmerging term is *blended learning* in which both, PCP and SLM facilities, are complemented by audio video recordings, connecting mails, phones and machines etc., [1].With the advent of education technology, online learning has become an affordable choice for young and old aspirants seeking higher and specialized education. Massive open learning courses(MOOC) and open education resources (OER) are the recent developments[2].

Continous engagement of l though has been a proven parameter in achieving excellence, was largely kept aside in DL because of the managiability issue in handling the huge number of students distributed over large distances. This paper discusses information communication technology (ICT)based tools to employ innovative ways for teaching and evaluation and a framework for DL in continuous evaluation mode. A Case: Institute of Distane and Open Learning, University of Mumbai (IDOL), has been presented along with a brief discussion on the challenges and opportunities in this domain.

Continuous Engagement and Evaluation model

Continous engagement results in (i) a better utilization of quality time, efforts of l and an institution, (ii) enhancing the learning outcome and, (iii) improving the performance and reputation of institution [3]. Generally, it is an outcome of the regular personal interactions between instructors and learners (L). However, L in an Open and DL system (ODL) gets limited such opporitnities.

A feedback received through periodic internal assessment (i) helps to improve cognitive learning and thinking of l, (ii) serves a basis to compute ability and interest of l in a particular Course that she has opted and, (iii) gives an insight about the difficulty level of a particular Course with respect to the given L [1]. These inputs are important while making decisions about complementory coaching. When employed in ODL, they reveal information about the interest of L in DL [3]. However, the huge number is a challenge in completing evaluation of L in time. Generally l in ODL (LODL) is engaged elsewhere during Office hours. Together with the commuting time to reach to an Examination center, creating a feasible test schedule for them becomes a crucial task.

Developing a model for continuous engagement and evaluation of LODL calls for research.A shift from a conventional classroom model to a virtual classroom is possible but most probably less feasible and maybe cost-wise not an affordable solution for a typical LODL. Alternatives for feedback based interactive learningin distance mode need to be explored. Information and Communication Technology (ICT) promisses a faster evaluation; also, it has a potential to generate and conduct reliable on-line tests that could be conducted anywhere, anytime. Strong technical support and orientation to distance learning technologies seem to be important best practices to address the concerns of ODL.

An ICT enabled scenario for continuous engagement and evaluation of an LODL has been shown in the Figure 1 below

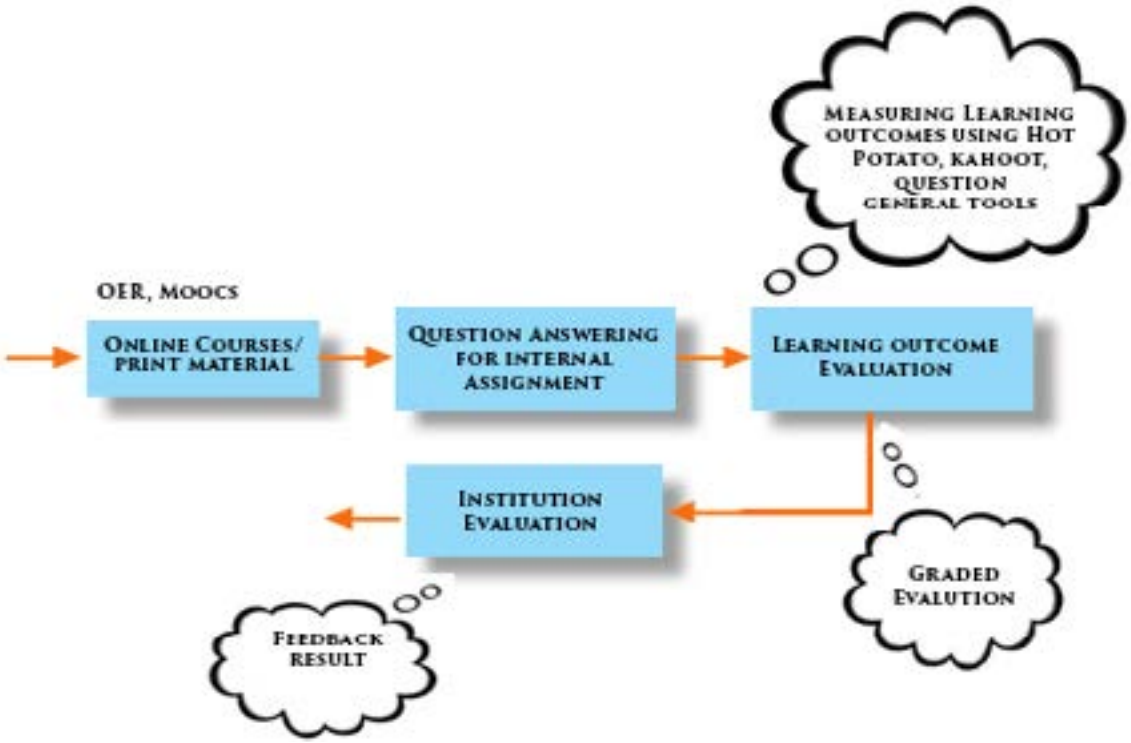

Figure 1: Proposed model for Continous engagement and evaluation of L in ODL

With the help of ICT tools tutors job can be made easy. Continuous evaluation through interesting question answering sessionsis possible by employing ICT. In the next Section we will discuss existing tools to implement our proposed model with a special focus on the evaluation related technologies.

1. ICT for ODL

IDOL case of around 1 lac students and 50 odd courses has been presented without loss of generality. We believe that our observations and findings are applicable to the L in post mobile-revolution India.

The modern cellular networks have reached the most remote parts of India [4].With the advant of internet technology and the availability of electronic goods at affordable prices, smart phone has become a reality in a common person's hand even in rural and interior India. The cell phone users are digitally literate, active on social media and are enthusiastic to grasp new solutions [5]. LODL are no exceptions. Arguably, internet plus cellular devices by setting up a reliable system and a protocol is a right combination for the content delivery and regular interactions with LODL.

A dedicated website and 24 X 7 help line are must for ODL system [http://www.ugc.ac.in/deb/pdf/RecognitionODLInstitutionsHandbook2009.pdf]. Besides University portal [6], IDOL has its own [7] one. We have a few human operated telephone numbers available during office hours. We added push and pull sms facility to it. Following models in asynchronous modewere recommended:

Model I: L with a minimal cell phone or occassional access to internet is sufficient.

S1.Publish PCP schedule on website and send sms alert to L.

S2. End of each PCP Session, a teacher sends a quick question on the scheduled topic to the appropriate subset of L (L') via sms, with a suitable deadline for reaching their responses

through a google form and save the sms price (approx 100 INR per student per year). The links to furhter reading and watching videos of recorded lectures or OER are provided separately on website.

S3.An Office assistant compiles the responses received through the spreadsheet of pull sms and throgh the google form; evaluation and e-record of performance of each student generated by executing a short script is publihed on website.

S4. Queries are received through the pull sms system or by email; they are addressed on one-to-one basis or collectively by arranging a special Session as the Teacher decides. The communication is through sms / email per the mutual convenience of L' and the teacher.

S5. Arrange a mid term and end term phone-in quiz of which the result and experts' views are available on-fly.MUST (University FM) radio listeners benefit. Avail Session recordings to the others. The live interactions motivatel to participate in.

Model II:

Assume that L is equipped and acquainted with internet technology and a smart phone. Subject-wise students-teacher group (L') is formed on whatsApp in most cases and on TheCN [8] or Moodle [9] if the questions are analytical / computational type that call for more space to solve and discuss the doubts in between.

S1. l enrols to Sessions (on-line or face-to-face whichever is convenient) per the schedule. No location constraint on the teacher and the taught, leads to flexi-time classes.

S2. A quiz in the end of each Session may include open ended, discriptive type questions. Responses are invited on Forum with no-repeat condition. The one who responds quickly gets an opportunity to write simple answer, late responders have to study more andpost a yet-not-discussed point. A detail discussion on the topic is a biproduct.

S3. Partial credit is given to the peer evaluation. Administration and evaluation of group takes place in Teachers' crowd sourcing [10]. Unlike paper correction, teacher does not feel burdened, rather find evaluation interesting. Virtual gifts and claps are incentives for the learners who contribute significantly. It motivates others to become active.

Model III:

Prerequisite and S1 are the same as in Model II.

S2. End of each Session, L are asked to compile or create *free* learning material the topic to contribute to OER. More and more e-content on each topic is generated; L get used to "fair use of theweb-resources". The model provides scope to the creative brains as well as hardworker netilovers. Allied reading is a biproduct.

S3. All the topics from the syllabus are distributed among the students. In a class of 50, generally each student gets a small topic on which she has to study, edit the compiled material and, present the content in a short seminar. Contribution to the OER and presentation take credit in the evaluation. End Unit Seminars are useful recap Sessions.

Model IV:

Assume that l has a will to develop writing and problem solving by using available on-line and off-line resources

S1. L' are formed as in Model III.

S2. Teacher recommends a reliable resoure (Text) for a Subject and distributes topics from it amongst the L (by some mechanism like voluntary or random or informed selection). Along the PCP Sessions, the students are expected to contribute to the OER by translating the learned topics from the given text into their mother tongue or a language of groups' choice and, by solving end-topic exercises from the text.

Intervention by Teachers and Peers leads to a continuous refinement in the production.

S3. Publication of the product could be an incentive.

S4. Evaluation will be based upon l's contribution to OER. Deep learning takes place.These models are inspired from the sofistication in Education technology that has taken place during the last decade. Following we discuss the basis models of which the localizations are employed in IDOL. MOOC is a movement started during 2008 with the consortium of world class Universities, namely, Athabasca University , University of Mary Washington , York College, City University of New York.

Thousands of students are enrolled in a batch. L are equipped with Lecture videos and a schedule to follow them. L are to submit the prescribed practice assignments on-line. Peer evaluation, machine assisted evaluation and evaluation by the Instructors are the three modes of evaluation. L is abide by the Code of conduct. Result of evaluation are published on line. The Courses in trial batches were free of cost. Thousands of Courses are available, anybody from anywhere can enroll. Diverse price models are available.

Edx is a most successful and widely accessable platform for deploying a MOOC[11]. MOODLE, TheCN, WizIQ etc., are learning management systems that serve a similar purpose at a comparatively low scale [12]. Deployment and maintenance of these platforms is relatively simpler than that of Edx.

YouTube chanel is a content management system [13,14], generally preferred by very small organizations or individuals who wish to provide on-line education in the domain of their expertize. Skype, google hangout and alike are the internet conferencing technologies [15,16] and are employed for teaching one small group by one in synchronous mode. Spoken tutorials are audio visual do type instructions available in several regional languages, letting L experiential learning [17]. Kahoot and Hot potatos facilitate game based learning and evaluation through the dynamically created sessions [18,19]. The quizzes can be on for a stipulated time, responses of l are compiled in a spreadsheet. Following

Table 1 presents a comparison of these technologies. Interestingly, all of them are user-friendly. There is a lot of scope for value addition by introducing intelligence in evaluation modules and their integrationwith LMS.

Table 1: Comparision of technologies use in ODL

Feature \ ⇩ Solution ⇨	OOC	MOODLE/ TheCN/ WizIQ	pe/ out	Spoken tutorials	utubec nel	Hot potato / Kahoot
Content type	imedia	Multimedia	imedia	Video, Text	ideo	Multimedia
Lecturing (L / Quiz (Q) / Both	Both	Both	L	L	L	Q
Quiz type	T	T	T	N	N	M, F, P, J, C, S
Efforts in creating quiz	More	Moderate	More	N	N	Less
Result on-fly	N	N	N	N	N	Yes
Self Pace learning	Y	Y	N	Y	Y	N
Asynchronous	Y	Y	N	Y	Y	N(HP?)
Collaborative learning	Y	Y	Y	N	N	N

Multimedia: Text, audio and video; Quiz type: T = Teacher created, M: MCQ, F: Gap-fill, P: Matching, J: Jumbled word, C: Crossword, S: Short answer; N: Not available, Y: Available

1. Discussion

Customization of a sophisticated learning management system is possible. Say for example, Edx is now Open source. Several distributions of Edx are available (e.g., IITs directX and TIFRs Metadata studio). Students' response to tecno-assisted learning is encouraging. Collaborative learning is motivational. Interesting assignments with sufficient chances for good score, time-line for completion of course, peer evaluation and quick results keep a l's enthusiasm elevated. Learning outcome are significantly high. L are volunteered to study more and score high, they volunteer to encourage peers to do so.

IDOL introduced 20% internal credits in Science faculty Programmes. Teachers chose to implement Models II, III and IV; results are improved, students' confidence in appearing for Practical and Project based examinations and involvement in the Subject have drastically been increased. Teachers are geared up to amalgamate test generating solutions like Hot potato in the LMS from the next year that should result in a more fun and higher scores in their Subjects. Similar results are expected from the others when they would implement ICT in the teaching and evaluation of their Subjects.

Creation of interesting content for tutoring and evaluation is an important and a crucial task. Quaity of content is limited by the creativity and enthusiasm of a teacher. Introducing techno-assisted learning in other than Science faculty Programmes is necessary for its promise to gain a better manageability when the scalability is high. The teachers' scenario about ICT in Education has been compiled in the Table 2 below:

Table 2: . The teachers' scenario about ICT in Education

Quality \ ⇩ \ Faculty ⇨	Science and Techology	Commerce and Social Sciences	Language	Education
Acceptance	Ready, ready for research as well	Curious, apprehenssive	Curious, Open	Ready to learn
Readiness to invest time	Reluctant to spend time on design	Moderate	High	High
Change implementation requirement	Incentives, research guidance	Training, assistance / buddy in the beginning, administrative push, free infrastructure		

1. Future scope

Generating several good questions on a given topic is a challenge. ICT based crowd sourcing [20], use of automatic question generators [21] and question enhancers [22], question set generators along with a protocol for quality creation and reliable administration of question banks could work. Machine intelligence could be employed in automatic evaluation of responses. Customized reports suggesting possible enhancements for each stake holder could be generated by embedding data analytics in LMS report generation.

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