Blended evaluation: A paradigm change in higher education by the use of ICT

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Abstract

Teaching and learning are the continuous processes where one can gain, share and evaluate the knowledge. Since ancient time, conventional class room teaching and conducting examination are predominant in the teaching learning process. However, the development of ICT has brought a revolution by outreaching millions of students at a time to share the knowledge in real time. Blending of the conventional method with ICT has made the education system time-flexible, economic and efficient. The examination writing has been replaced by online quizzes, mobile apps, and discussion forums for face-to-face interaction. Massive Open Online Courses (MOOCs) have made the teaching learning process still simpler and interesting. This paper discusses the blended method of teaching learning, evaluation and discussion. The detail design of a mobile quiz application for on-the-fly evaluation has been discussed thoroughly.

1. Introduction

Learning is the process of acquiring the knowledge and skill. A good learner can be transformed into a good teacher if he can create an environment where others can learn effectively. There is a continuous strive in the education domain to empower the teachers or instructors by helping them develop a deep understanding of how students *learn*, so that they can effectively update their teaching methodology.

Use if information and communication technology (ICT) has brought a revolution in the entire education system [1]. Blended learning includes internet based learning with the face-to-face learning method. ICT education increases access, flexibility of content delivery, and provides learner centered approach from students view. Getting the instant feedback of a delivered lecture to know the understanding level of students enables the instructor to ensure the quality of teaching. Evaluating the learners by taking instant quizzes in between the lecture is a step forward in this direction. The paper aims to design an android based mobile application to evaluate the learners by taking instant quizzes.

2. Literature Survey

2.1 Blending in teaching-learning:

Since ancient period teaching is another example of one-way communication. Mostly the teacher delivers the lecture giving a very little opportunity for the student to interact; this may be due to lack of time or load of the syllabus to be covered. At the end the teacher has no idea about the level of understanding by the students for the lecture he has delivered. Though this conventional class room teaching provides synchronized attention of all students and a face to face interaction between the teacher and learner, but it is difficult for the teacher to make the students awake and interested to listen the lecture. The scenario is no different for the learners also. Moreover, the scalability of learners is a big issue in this scenario.

Introduction of ICT into higher education is not only to speed up the student enrolment and involvement, but also give an economic make-over of the country when planned and executed strategically. Being more transparent and faster, it is possible to raise the quality of education, assess the outcome and aim for excellence. The challenge of faculty shortage can be met by the use of ICT based education. Govt. of India has taken initiative for ICT based education with the launching of Gyan Darshan in 2000 for school kids, university students, Gyan Vani in 2000 by IGNOU and IITs, NPTEL in 2001 (initiative by IITs and IISc), NMEICT in 2009 to develop and standard digital content for higher education in India.

A paradigm change for teaching learning process is the availability of Massive Open Online Courses (MOOCs) that support self-paced learning. An online discussion forum provides interaction between learners and experts. Thousands of MOOCs are available now in India and abroad like NPTEL and Coursera. This enhances the flexibility of learning. Online discussion forum provides meaningful and elaborate explanations and examples in an asynchronous manner.

The new revolution in the teaching learning process is the blended mode of teaching and learning [2]. Flipped class rooms, blended MOOCs are the examples of such mode of learning. These methods blend the strengths of face to face interaction with the learning flexibility. In flipped class room method of teaching, the student go through the pre-recorded video lectures and the study materials beforehand, and then come to the class. The entire lecture hour is then spent in discussion and problem-solving. It has been proved that this blended model has enhanced engagement of students and making them active throughout the lecture hour [3].

2.2 Blending in Assessment:

Assessing the students is a vital part of the education system. The feedback of evaluation indicates the level of standing of the learners in the subject domain. Traditional examination system cannot be conducted for every lecture; But the evaluation of every lecture hour gives a confidence to both the teacher and the student to progress subsequently. Quizzing is a wiser option for evaluating the level of understanding by the students after every lecture hour. Even taking a feed back in between the lecture also force the student to be alert during the class. Online Quiz portals are very common these days that include exams like BITSAT for undergraduates, CAT, GATE etc. Many companies recruit on the basis of online aptitude and quiz tests. Answer booklets are becoming obsolete. Online quizzes ensure easy assessment without any need of man power. Further development in this technology is going mobile; every person has a smart phone in his hands. These affordances lead to tremendous potential for innovative uses of mobile technologies in e-learning process [4]. It is more secured, customizable, easy to use and accessible on the go. Most of the smart phones used are android based [5]. This motivated us to design an android based mobile application for evaluation of the students and subsequent discussion for doubt clearing.

2.3 Blending in communication platform:

Blended teaching learning method allows both the teacher and learner to stay connected from different locations through a common communication platform. Video conferencing equipment are developed for connect people at multiple locations together. Social sites like face-book, hangout, skype are also the options to allow the teacher and learner to have face to face interaction and discussion. However, bringing a scalable number of participants into a single platform is not possible. IIT Bombay conducted several courses under the “Teach 10K Teachers” (T10KT) scheme, where they tried to connect multiple thousands of people for real time teaching and face to face interaction with the support of A-VIEW software. Licensed software Adobe-CONNECT has the provision for creating virtual classrooms to cater e-learning.

3. Proposed mobile application for evaluation- QUIZARD

The proposed work deals with the online assessment of the students. It aims at providing a platform for online objective assessment which is quick and efficient. This work consists of an online platform where the teacher can create and schedule a quiz as per his requirement. An android application is designed by which the learner can take the quiz and asses himself. Since this removes hassle of evaluation, a large group of students can take part in quiz and instant assessment or feedback can be taken for any lecture by the teacher. The proposed android based assessment method can cater e-learning as well by accessing a remote server where the quiz is hosted. Any android based devices can be used to run the application; for example in addition to the android based smart phones, the cheapest Aakash tablets or any similar portable devices can also be used for this application. It connects the quiz server to the client’s android devices and after the client finishes the quiz, details of client (roll number etc.) and evaluated score is sent to the server where these details are stored in the database for evaluator’s analysis. Figure 1 indicates the components of the application and the flow diagram.

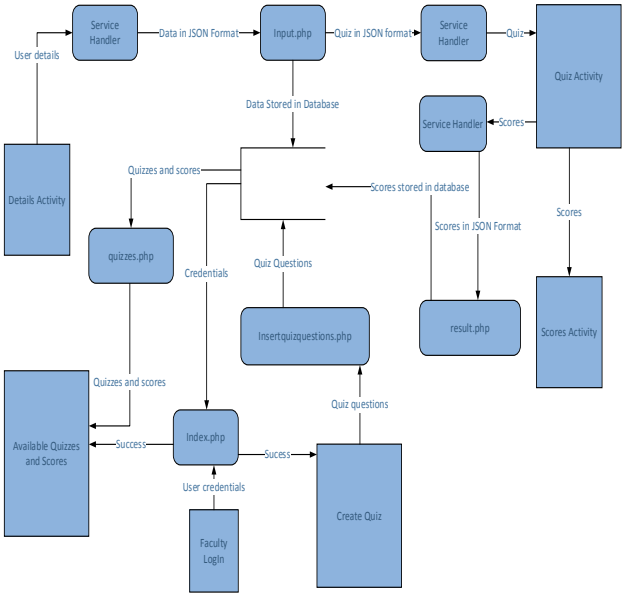

Fig 1: Data Flow diagram of QUIZARD

The teacher can login to the server using credentials provided to him and stored in the database. He has given the privilege for creating a new quiz, seeing the scores of the students in each quiz, put the time limit for the quiz and close the quiz as well. On the client side (i.e. the student side) he has to download the android app designed. One can simply download this app and start giving quizzes but only when he knows quiz ID which is to be provided by the teacher only at the time of conducting the quiz. The student has to enter all his details before starting the quiz. Answers will be automatically submitted if it is a timed quiz (i.e the teacher has put a time boundary for each question in the quiz set) when timer expires or can be manually submitted before. After the submission of the answers the students will be shown his scores on his screen.

The app has a common discussion forum where the students can post their doubts related to any question. The faculty can see the question and answer him immediately or can schedule to later stage. The students too can share their knowledge on this discussion forum. This enhances the one-on-one interaction between the learners and teacher resulting increased confidence among the students.

3.1 Snapshots

Below are some snapshots of the application. Fig 2 indicates the screen for the teacher having the features of Login, Dashboard for creating new quiz, for seeing available quizzes, for adding users, and seeing the scores of individual students in each quiz respectively.

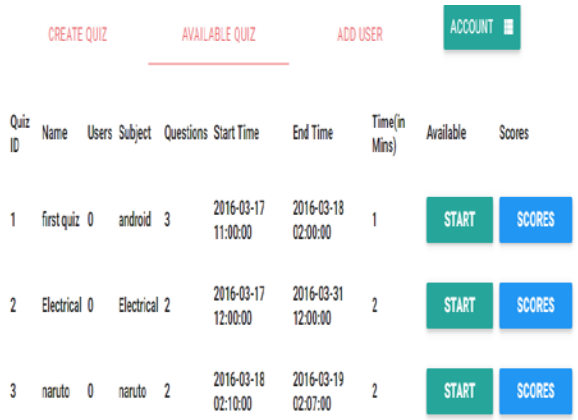

Fig 2: Snapshot for the screen for the teacher

QUIZARD has the following features when downloaded onto the student's android device:

- **Main Menu** that appears when he starts the app and finds two buttons; To Take a Quiz and to change the settings.
- **Details** page to allow him to enter roll no, name and quiz id and a button to start the quiz. This directs to the quiz activity.
- **Quiz** contains questions and options with buttons like next, previous and finish for their respective functions. This includes a timer which can automatically submit the answer on expiry. Figure 3 provides the snapshot for the same.
- **Score** which displays the score and a detailed report for the statistics of his performance in the quiz.
- **Discuss** forum for posting his doubts in any question or related item for which he may need a clarification.

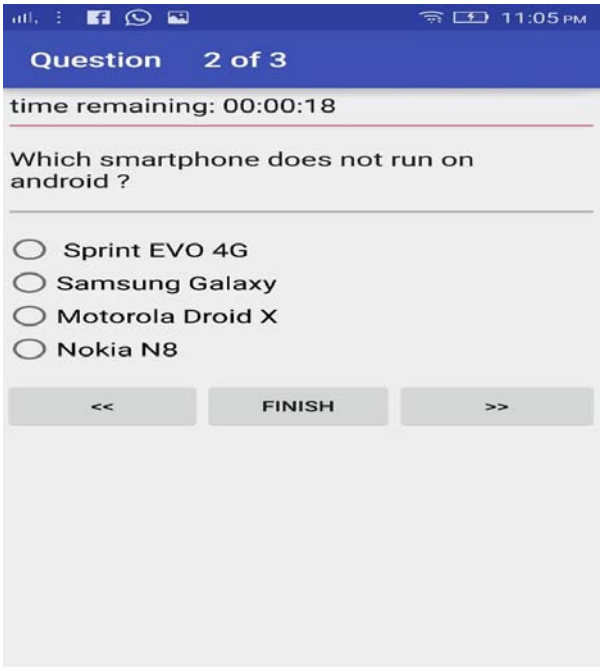

Fig 3: Snapshot of QUIZARD at student side

The android mobile application is portable and easy to maintain. It bridges the teacher and students for face to face interaction and reduces the gap between the two. Even a single quiz can be posted at any point of time by the teacher to get the feedback of his lecture. Blending of these periodic mobile quizzes with the traditional examination pattern enhances the knowledge level of the students.

4. Proposed Multimodal streaming- The future approach

Availability of communication bandwidth is an issue in India. Thus it becomes evident to create some efficient compression techniques to make the system more effective and fast. Freedom of using video conferencing platform and communication devices like PC, laptop or any hand held device can make the process of e-learning much easier. Development of a converging video platform for multimodal streaming in e-learning with interactive and easy interfacing is the future demand. This can connect the high bandwidth NKNs to the social media sites and to the codec as well. Thus by accessing a single gateway the user can have a blended video conferencing platform to cater e-learning.

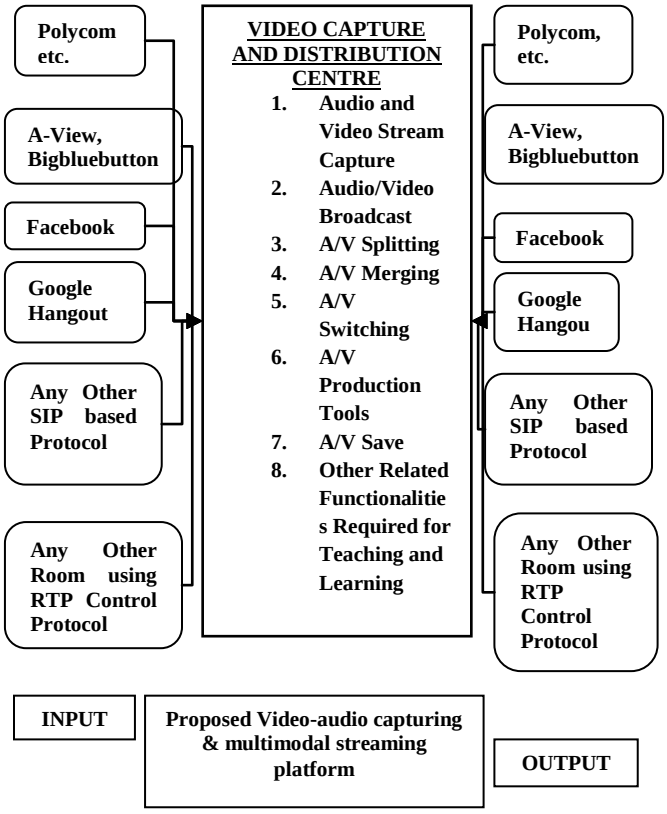

Fig. 3: Flow Diagram of connectivity

Figure 3 indicates the architecture of the future model where varieties of input can be merged into a single platform. The user will have the flexibility of choosing a platform of availability and they can be connected to any other output platform through a single gateway. This multimodal streaming needs design of supporting hardware as well as software for converging multiple platforms into a single and vice versa.

5. Conclusion

This paper discusses the different paradigms of blended learning, assessment and communication for e-learning. An android based mobile app has been designed for instant evaluation of students in a class. Easy affordability of android smart phones can enhance the usability of the app. As the younger generation is becoming mobile / techno savvy, accessing this app will be a convenient mode for the students. The teacher can float the quiz at any point of time and take the assessment. Simple design, easy maintenance and user friendly GUIs are the strengths of the app. This is an added strategy for evaluating the students along with the conventional answer script based examination. A discussion forum creates a friendly environment for the teacher as well as learner to share the knowledge. A multimodal streaming for video conferencing is also proposed in this paper. This design is expected to eliminate the bandwidth scarcity issues for communication.

6. References

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