

# Active Learning Through Videos of Class Lectures

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**Abstract -** As today's world is emerging towards smartness, the traditional way of teaching is still, not necessarily the most effective way. In this project, we have proposed a web application for sharing class and pre-class lecture videos. The lecturer will be able to post their own lecture videos in the web application and the student can watch the videos and listen to the lectures anywhere at any time. Generally, students were not able to pay 100 percent of attention to the class lectures. Also it may be not possible for a student to attend the class regularly. Therefore, streaming of class lectures will help the students to learn those missed sessions by watching the videos from their house itself. In addition, the pre-class lecture videos can replace in-class lectures by utilizing the class time for active problem solving and exposure to real-time applications. These videos also aids the lecturers to observe their own activities, which would enable them, analyze their own teaching and can make decisions about any necessary changes in their teaching style.

## I. INTRODUCTION

Traditional education is defined as teacher-centered delivery of instruction to classes of students who are the receivers of information. Traditional institutions generally stress basic educational practices and expect mastery of academic learning in the core subjects. Most organizations generally follow this educational model<sup>[8]</sup>. On the other hand, an online educational or e-learning service is a website, which teaches and helps students improve in certain subjects<sup>[5]</sup>. These are normally, used by institutes to let students learn from home and complete online homework.



Fig. 1. Traditional Vs E-Learning

Traditional education is not necessarily the most effective way of learning, because no student can pay full of attention to the class lectures, and it cannot be possible for a student to attend the class regularly. So due to many reasons such as lack of concentration, absent to the class, wrong understanding of the concept, etc., the education system may face a poor outcome. Another factor is that, a lecturer may not handle an efficient teaching methodology. E-learning as

a method of education makes the learners undergo contemplation, remoteness, as well as lack of interaction or relation. It therefore requires a very strong inspiration as well as skills with to the management of time in order to reduce such effects. With respect to clarifications, offer of explanations, as well as interpretations, the e-learning method might be less effective that the traditional method of learning. The learning process is much easier with the use of the face to face encounter with the instructors or teachers<sup>[2]</sup>.

Both traditional and e-learning system has its own advantages and disadvantages. In order to overcome the disadvantages, we propose an idea of converting the education system into active learning education, by sharing the videos of class lectures through online. This method will deliver the benefits of both traditional and e-learning system and makes the education more efficient.

## II. LITERATURE SURVEY

Elementary education besides being a basic human need is vital for raising the standard of life, providing gainful employment, removal of regional backwardness, thereby ensuring overall development and wellbeing of a country. It is therefore the need of the hour to review the literature carried out by different academicians, educational thinkers, researchers, policymakers and educational reformers in the field of education

Acharya, Prasanta Kumar and Behera, Manoranjan. (2004), pointed out that that by the end of November 2003, the progress on civil works had been very slow especially due to late release of funds, inadequate monitoring and lack of district level convergence of SSA with other allied development schemes. But remarkable progress was made by Orissa Primary Education Programme Authority (OPEPA) in organizing teachers training programme both at state and district level. Nearly 70% EGS (Education Guarantee Scheme) centres had been made operational by OPEPA which was a remarkable achievement. But progress in the opening of Alternate and Innovative Education Centres (AIE) was very unsatisfactory<sup>[9]</sup>.

Devaraj, Amaidhi et al. (2005). undertook the study related to Quality education in Chamarajanagar district .According to study: Chamarajanagar district of South Karnataka has low literacy levels and a large population of Scheduled Castes (SC) and Scheduled Tribes (ST). An intervention was undertaken to improve the quality of elementary education in Government schools and Ashramshalas (Govt. aided

schools) by building the capacities of all stakeholders involved. It was observed that learning levels improved during tests conducted by DQEP. Progress was made in efforts to involve and integrate the community with the school. HM engaged parents and the community in discussions about school development and children's learning levels. Teachers learnt how to identify children whose learning levels were low and gave them special attention. Overall, teaching methods improved through use of drama, games and art activities conducted inside the classrooms<sup>[9]</sup>.

Indian Institute of Education, Pune. (2006), investigated the problem of school dropout which has been continually troubling the primary education system not only in India but in other developing countries too were highlighted. In this article various factors affecting fewer attendances were explained. It was also suggested that local teachers should be made available for teaching in schools so as to reduce the problem of teacher absenteeism and improve punctuality; incentives should be provided to encourage women teachers; and the cultural gap between parents and teachers should be bridged through more elaborate form of participation in the school management and control system<sup>[9]</sup>.

Khandelwal, (2007). Evaluated the theoretical and practical aspects of teachers training in India. The curriculum of elementary teacher education covers 3 components namely – Theory of education; practice of teaching; and practicum (project work, sessions work, Primary Education co-curricular activities, etc). Teachers education programme facilitates the trainees preparation for performing the role of an instructor, a facilitator of learning, and an evaluator. Effective teaching involves the skills of introducing a new lesson, stimulating pupils' interest and sustaining their motivation, helping pupils to learn new concepts framing thought provoking questions, organizing classroom interaction, etc. A Teachers Education Institution (TEI) organizes exploratory visits to schools, observation of classroom teaching, practicing blackboard/ whiteboard writing, preparation of lesson plan writing, practice teaching, supervised teaching, and training workshops. The Committee suggested that theory and practical components should be assigned equal weightage in the final assessment, as well as in internal and external assessments. Viva-voce should be conducted at the end of 2nd year jointly by internal and external examiners, and each team of evaluators should have one internal examiner and one external examiner<sup>[9]</sup>.

Mehta, Arun (2008) again in 2008 presented analytical report 2006-07 The National University of Educational Planning and Administration has created a comprehensive database on elementary education in India known as District Information System for Education (DISE). The project covers both primary and upper primary schools/ sections of all the districts of the country six states in the north-eastern region which was true for primary and composite primary and upper primary levels of education. Seven states have been grouped under smaller states. These smaller states were doing much better than a number of bigger states. There is also need to analyze each indicator separately and identify states that

need improvement. Many schools are left to para teachers, who manage school affairs. Studies should be initiated on the functioning of all such schools. The dropout rate was high at primary level; it needs to be checked, without which neither the goal of universal primary education nor retention can be achieved<sup>[9]</sup>.

Modern Education Era (2010-2018), Modern education is very different from the traditional education. The education which is taught in the schools today is the modern education. Modern education teaches about the skills required today that is the skills of science and technology, science of medical science etc. In addition to listening, the modern education includes writing, visualizing, imagining, and thinking skills. This type of education also includes written tests to examine if the students are learning properly or not. This is done in a very formal way. The methodology used for teaching is very interactive. Modern education is just evolution of the traditional education which was imparted to the students a few years back.

### III. PROPOSED EDUCATION SYSTEM

Our intention is to make the education more efficient to resolve the overheads of traditional and modern education systems. Our idea is to develop a web application that streams the videos of past-class and pre-class lectures. This will help the students to learn the lack of lectures by listening to the video from their home itself. This ideology combines the best practices of both traditional and e-learning system. Students may feel quite bored with the in-class lecture. They feel to learn things in free environment and at their own time. When the lecture's write and teaching speed is too fast, students are very difficult to pay attention in class and easy to transcription errors. If we can record the lecture video and sharing those videos, students not only enable learning the concept from videos easily, but also not easily transcribe the wrong notes. Also the lecturer can post the pre-class lectures and activity, so that the class time can be used for active problem solving, creative discussions and exposure to real-time applications.

#### A. Flow Chart

A flow chart is a graphical or symbolic representation of a process. Each step in the process is represented by a different symbol and contains a short description of the process step. The following flow chart depicts the flow of process involved in our proposed system.

The processes involved in our proposed system is elaborately discussed in the following steps,

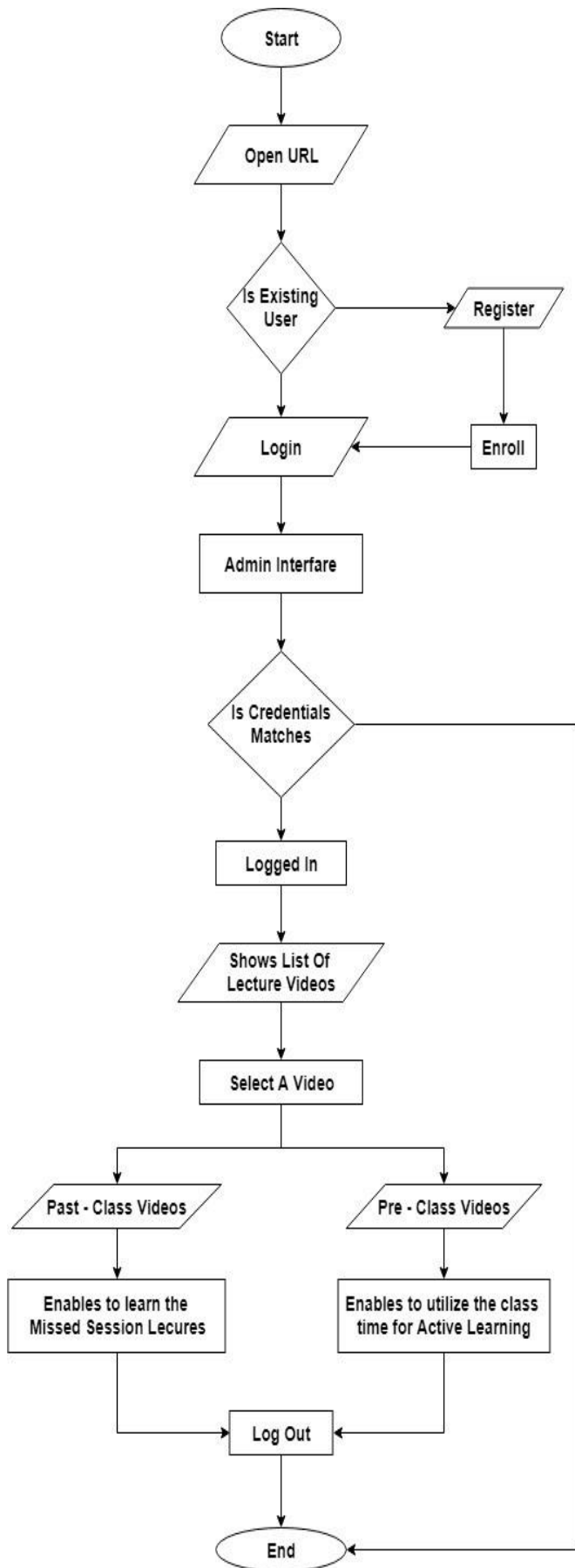


Fig 2. Flow Chart

- The use of our application can be either the students or the lecturers. Each user must get, authenticated by the Admin Interface with their own login credentials.
- If the user is new to the application, the he/she must enroll their required details with the system to get registered.
- The Admin Interface will allow only the authorized users into the application, by matching the login credentials with the registered details.
- Once the user gets logged in into the application, he/she will see the list of lecture videos, with topic, subject, lecturer, and date attributes.
- If the user were a student, he/she can select pre-class or past-class lecture videos to learn the concepts via their own lecturers.
- The past-class lecture videos, aids the student for learning the missed sessions, clear understanding of the concept, listening the concepts again-and-again and so on.
- The pre-class lecture videos enables the lecturer to replace the in-class lecture time by providing active learning, discussions and exposure of real-time applications.
- If the user were a Lecturer, they can observe their own activity and will be able to make decisions about necessary changes in their teaching style.
- Finally, the user can logged out of the application.

*B. Use Case Diagram*

The use case diagram shows the graphic depiction of the interactions among the elements involved in our system. The elements outside the rectangle are the actors of the system and the elements inside the rectangle are the use cases.

An actor in the use case diagram specifies a role played by a user or any other machine that interacts with the subject. In our system the actors are Admin, Lecturer and Student. Use cases are set of actions, services and functions that the system needs to perform, which are shown, in Fig 3. The lines shows the interaction between the actor and the use cases.

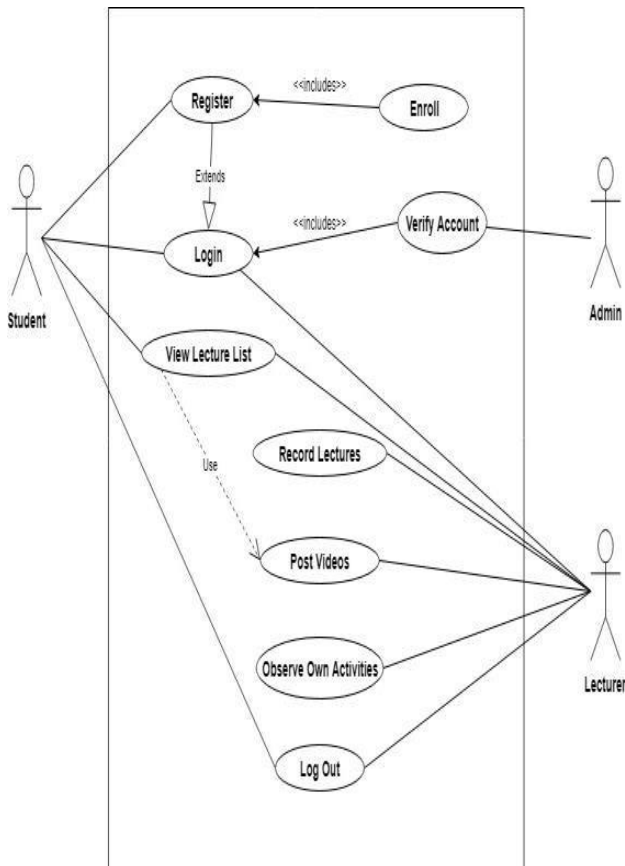


Fig 3. Use Case Diagram

#### IV. PERFORMANCE ANALYSIS

We have taken an experimental analysis on traditional learning, Modern learning and our concept of active learning. In traditional learning, there is a good communication between students and teachers and between students. This is very essential for boosting up the confidence level of students. A good communication makes students good communicators and teachers also feel competent after getting feedback from students. But, the students who lack attention and make themselves absent for the classroom face trouble in learning the clear-cut idea about the particular concept. Whereas wrong understanding and lack of teaching efficiency also involved to diminish the overall performance of the education<sup>[1]</sup>.

In Modern e-learning system, Learners can study wherever they have access to a computer and Internet. Self-paced learning modules allow learners to work at their own pace. But, Unmotivated learners or those with poor study habits may fall behind. Lack of familiar structure and routine may take place. Students may feel isolated or miss social interaction thus the need to understanding different learning styles and individual learner needs<sup>[6]</sup>.

Our proposed system is the concept of combining both traditional and modern learning, so that it takes more advantages by eliminating overheads in the existing systems. Learning the concept from traditional education and learns the concept at any place where and when they want to learn the concepts. Also, it helps the lecturers to increase their teaching efficiency. The following Table 1, shows the scale

of feedback for all the learning system. We implemented all the three learning methodology and got feedback from the students. Where the maximum score range is '10.0'. It is noticed that learning via the videos of class lectures has really liked by the most number of students, also the lecturer teaching becomes more effective while comparing to other system.

Table 1. Evaluation Based On Students Feedback

Evaluation	Traditional Learning	E-Learning	Active Learning
Overall this was an effective course	6.6	4.3	8.0
Overall this was an effective Lecturer	7.2	6.9	8.5

#### V. CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE WORK

This paper describes a simple and efficient way of learning system that aids both the students and lecturers. The application enables high security, incredible learning system and active problem solving. The lecturers can observe their own activities, which would enable them, analyze their own teaching and can make decisions about any necessary changes in their teaching style.

In future, this application can be featured with live streaming of lecture videos, so that students who was absent for the class can listen to the lecture instantly from their own place. Also, comment boxes can be added to each lecture video, so that students can comment their doubts and lecturer can clarify those doubts instantly.

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