International Journal of Advance Research in Science and Engineering
Volume No.07, Issue No.01, January 2018
www.ijarse.com
IJARSE
ISSN: 2319-8354

E-CONTENT DEVELOPMENT TOOLS AND DELIVERY PLATFORMS

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ABSTRACT

Knowledge and information can be sourced by utilizing E-Learning technology. E-learning is a web based blended interactive way of digital learning that is electronically delivered. For electronic learning it becomes essential to develop e-content with the varieties of tools available. There exist many e-content delivery platforms to exhibit our content. Some of the basic tools for developing interactive e-content, simple delivery platforms and grading tools are explained in this paper. In developing country like India E-Learning can raise the level of education, literacy and economic development. Learning anything, anywhere, at anytime is the current scenario.

1. INTRODUCTION

The illiterates of twenty first century will not be those who cannot read or write, but those who cannot learn, unlearn and relearn. Technological revolution force us to learn everyday in our life. Updating our knowledge with current trends is essential for our day to day work. E-learning is the current scenario in education sector. If e-learning reaches the remote and rural parts of India, it would be much faster to educate people. One major problem faced by India is that almost all highly skilled professionals are based in bigger cities that deprive the rural population from getting educated through them. E-learning simplifies this process by taking the knowledge to masses provided that there‘s internet connectivity available at some nearby area. The Indian Government has also taken steps to promote education through E-Learning by introducing many MOOC's(Massive Online Courses) and creating many OER(Open Education Resources).

E-learning is the future learning system from school education to higher education and even for faculty members. Currently, E-courses are available for school education,

diploma, degree, post graduates, research scholars and faculty members. There is a enormous growth rate in the tools used for designing a learning management system. The actual challenge here is we need to develop Interactive course that are both rich in content and are interesting to the viewer. Many tools such as E-Content generators, screen casting tools, audio and video creator, animations, simulators, grading tools, content management tools, survey tools, editorial calendars and many more are available to create a rich and powerful delivery platform. E-learning growth rate in India is less compared to other developing countries.

2. RELATED WORKS

Somayeh[1] reviewed Medline and CINAHL databases and google search engine, and showed the effectiveness of E-learning. El-Seoud[2] explained in his paper about Moodle E-learning platform that has been implemented in universities of Egypt. He comes with a conclusion that E-learning provides motivation to many students to learn. Sangeeta[3] analyses the various e-learning procedure and concludes that E-learning is a most challenging and future area of research. She also projects the importance of E-education system and market of e-learning. Arun[4] explained the types of E-learning, summarizes several opinions regarding the comparison between traditional learning and modern learning technique. The paper mainly focuses on E-learning in India. Noesgaard[5] suggests an empirical study of an E-learning for science teachers. Further, it states that it is difficult to use e-Learning to improve teaching performance. So in addition to E-learning work-related practices should also be given. Self assessments in which the participants are able to successfully report their own practices provides effectiveness to teaching. Deepali[6] focuses on the existing system of e-learning in India and discusses about the future growth of it. Comparison of E-learning growth rate in India with other developed countries is also discussed. Adaptation to E-learning is very slow in India. Gaur[7] analyzed the different research approaches to E-learning and describes research trends in this field. Y.P.Singh[8] explores the advantages and disadvantages of the Digital Learning, how it is effective and how it is impacting the current learning mechanism. Anirban[9]outlines a complete facility of e-learning process like, model e-learning classroom, web enabled systematized way of quality learning process, digitized methodologies to interact with instructors and fellow friends, online examination system and other many other facilities which will enable to get

the already dropped out or going to be dropped out or regular students interested in learning so that the enrollments of higher education in West Bengal will increase. Anand[10] study about the awareness and impact of E- learning in selected rural areas in India. The paper also gives providers and learners ratio and an analysis on the collected data has been made to find the advantages of E-learning resources. Ibrahim[13] explained a measure for comparative effectiveness between two learning environment based on Kirkpatricks four-level evaluation model and then a case study was applied to test all the levels of the framework.

3. E-CONTENT DELIVERY PLATFORMS

The E-content delivery platform known as LMS (Learning Management System) is a server-based or cloud based software program. LMS has information about courses, the users and course content. A learning management system provides a platform to teach and learn without depending on the time and space boundaries. Anybody can take any course in which they are interested. Learning Management System is a software application that manages various functions like administration of classrooms online, documentation for various courses, tracking the progress of the user, reporting of training programs, online events and grading the users. Most of the LMS have the following features : Registration and Enrolment options to teachers and students, Adding and Deleting Courses by the University and Educational Bodies, Set different Roles for users and managing user account, Setting the course calendar, Upload and Retrieve Assignment and Resources. LMS is used by students, teachers and administrators. LMS can be used by anyone who is interested in conducting the online classes and who wants to store and retrieve the student's documents. The modules can be grouped under the following category:

- Content Manager
- Course Manager
- Catalogue Manager
- User Profile Manager
- University Consortium Manager
- Learning Planner and Calendar

Some of the popular LMS software available in market are Canvas, MindFlash, LearnUpon, Moodle, Blackboard, Talentless and BridgeLMS. One of the easy to work with

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IJARSE
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and free online software available is the Canvas. Canvas upon simple registration allows us to create our own course in teacher's mode and also we can join any number of course as student. It supports content in various formats, e.g. multimedia, video, and text. User can have any number of modules and pages inserted into it. The option provides way to insert any number files uploaded to the Canvas which the student can view. Animations, Simulations, Interactive contents, Audio files and screen casting can be added to our course. This paves way for the learner to properly understand the concept and have a clear idea. We can also provide assignments to the students evaluate and grade them easily. Few screen shots are shown in Fig(1). Teachers can modify information according to the need of the student.

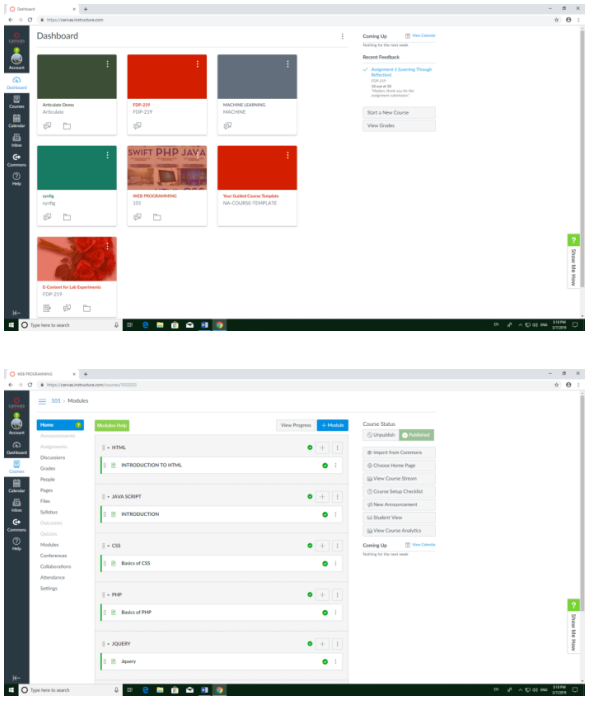

Fig 1 : Canvas Instructure Screen Shots

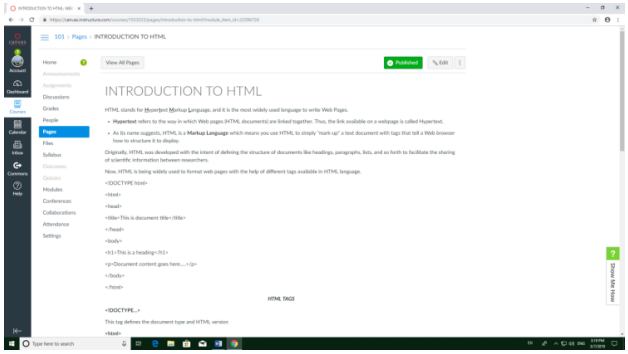

Fig 2 : Canvas with E-Content

Using the proper learning strategies LMS can increase motivation of learners, promote learning, encourage interaction, provide feedback and support during the learning process. Improvement in teaching methodology and the outcomes of the learning are not guaranteed through learning management system. This kind of teaching involves reuse of the content and thus saves cost, effort and time. Various innovative activities are offered to the learners to make learning active and interesting.

4. E-CONTENT GENERATION

There exit wide varieties of tools to create E-Content. Starting from simple power point presentations to 3D animations which creates virtual reality of the object under study. The E-content is actually a virtual teacher and it should give us a very high quality digital content that is well designed, developed and validated. Various factors like the subject, its complexity, learner and nature of the content will influence the design. Several models and design strategies are available to develop the e-content. The general steps that are mostly followed are analysis, design, development, implementation and evaluation.

Articulate Storyline (Fig 3) is a easy to use software that can create virtually powerful contents that are interactive and can be accessible to mobile users as well. An optimal view is automatically provided to the mobile users. The triggers are used to create effective interactivity in Storyline. We can decide when an action should take place, where should it take place (like in the same layer or other layer) and what should be the action. These are possible only with triggers. It is also possible to create questioner which may include true/false, choose one of the four options, match the following, image matching, etc. Simple animations can well be created here. The tables are used here to organize the content and present them neatly to the user.

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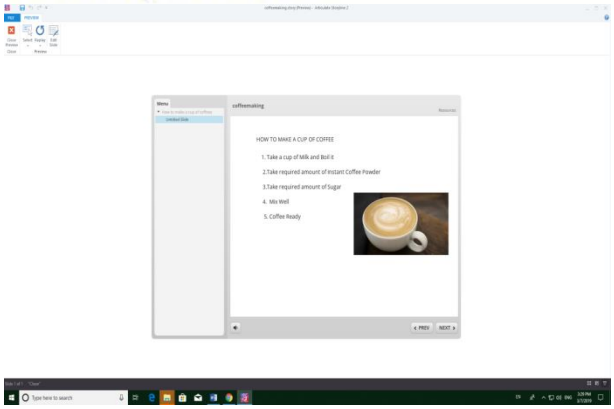

Fig 3 : StoryLine Screen Shots

5. ANIMATIONS

A picture is worth a thousand words similarly an animation can make us understand even a complex system. Simulations or movement can be created by generating a chain of pictures and giving effects that create a optical illusion of movement. The common methods of presenting animations include video program, motion picture and various other forms are available. We can have a 2D or 3D animation in our presentation. A 2D animation creates movement in a two-dimensional space and allows us to create characters, storyboards, and backgrounds. In 2D animation the objects can move up, down, left, and right. 2D animation uses bitmap and vector graphics to create and edit the animated images. Some of the popular software available are Adobe Photoshop, Flash, Synfig, and Encore. 2D animations are easy to generate whereas 3D animation require a deep knowledge and skill in modeling 3D objects. Modeling, animation and rendering form the basics of 3D animations.

There are many 2D to 3D open source convertor software available. The convertor tool adds depth information to the 2D image fed to it. Different algorithms and techniques are used by different convertors to convert a given 2D image into a 3D image. Some of the popular software available are Blender, Make3D, 3DShade, Recap pro, Insight3D, ConvertImage, etc. Some of them are fully automatic, they have programs that automatically estimates depth for an image. Most of the convertors will get a 2D image captured from a normal camera and stored in PC in standard image formats as input and adds depth using various techniques. Others are semi automatic, we have to assign depth to various parts of the image. We need to define few parameters like width, depth, position of object explicitly.

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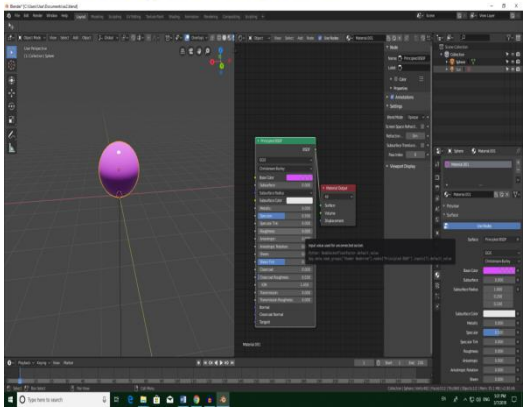

Fig 4 : 3DAnimation with Blender

6. AUDIO GENERATORS

The presentation will be powerful only when we have a audio accompanied with it. Many free software such as Free Sound Recorder, Audacity and WavePad are available to record our audio. Audacity (Fig 5) is a open source software that allows us to record live audio and comes with several features. The recorded audio can be cut, copied and mixed with other sound effects. We can also change the speed or pitch of a recording. It is also possible to convert old recordings into digital form and edit any type of sound file formats.

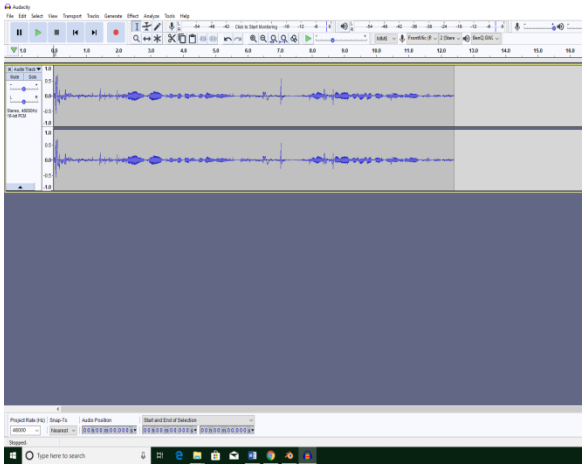

Fig 5 : Audacity Voice Recording

7. SCREEN CASTING TOOLS

The screen output that is the video screen capture along with the audio can be digitally recorded. This is known as screen casting. Several software are available for screen casting. Some of them includes CamStudio, Screencast-O-Matic, Screenr and Jing which are

available free. Some are free web based software. The Screencast-O-Matic (Fig 6) is easy to use free web based casting tool. By simply clicking the "Start Recording" one can activate the online recorder. The user can choose the recording mode . They can record only the screen, webcam or both and can select the region for recording in the screen. This can be saved in their computer or can be directly uploaded. Wevideo, Magisto, Videopad, openshot are video creators and editors.

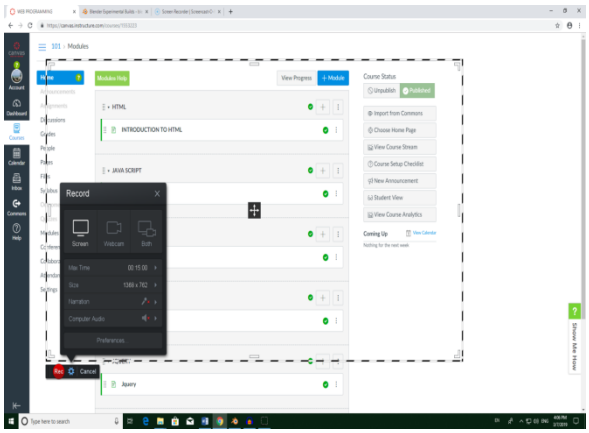

Fig 6 : Video Recording-Screencast-O-matic

8. GRADING TOOLS

To know the real outcome and to evaluate the student performance, Grading becomes essential. It is a prime concern in deciding the student success. Grading gives feedback to students on their performance and help them to know their own strengths and weaknesses. Some of the tools available for grading are: ActiveGrade, LearnBoost, JumpRope, Answer pad, and FreshGrade. Rubric is a popular grading tool used for marking assignments, class participation, or overall grades. There are two types of rubrics namely holistic rubric and analytical rubric.Decide what criteria or essential elements must be present in the student's work to ensure that it is high in quality. Rubric allows us to decide number of levels of achievement, components at each level and their relation to the grading scheme. We can also add comments.

9. CONCLUSION

E-learning is the best methodology through which one can experience the greatest benefits of learning because technical education is expensive, opportunities are limited, and

economic disparities exists. In country like India, were every state practices different languages E-learning should be enabled in multiple languages using multi-lingual courseware. The government of India has introduced E-learning platform, SWAYAM developed by MHRD and AICTE which offers many E-courses. E-learning can increase the level of education and more number of peoples can be educated which paves way for the economic development of the country.

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