

Flipped Classroom for Educating Library Patrons Online: A Case Study

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Abstract— Libraries all over the world are offering various web based services to the users. Because of web and new library technologies it has become very easy to reach patrons and provide them resources at their finger tip where ever they are. When we see western country libraries and Indian Libraries we find that Indian libraries are lagging behind in offering web based services because of various reasons like lack of trained staff to manage these kinds of services, websites are outsourced and lack technologies and tools used behind such services. In this paper, the author tried to show how libraries can make use of new open source educational technologies and tools to train their users with examples.

Keywords— Flipped classroom, educational technology, wiki spaces, library website, information literacy, online education, instructional technology and library web based services.

I. INTRODUCTION

Libraries are vibrant learning units in any academic institute. Libraries are considered as the heart of an educational institute. Libraries give access to OPAC, institutional repository and electronic resources online, but still the use of all these resources in universities and colleges is low. The main reason behind this is that the student number strength is very high in universities and colleges. In many universities and colleges there is no fixed schedule to give information literacy programs and orientation for all students. Every year all colleges and universities organize such sessions, but only interested and present staff and students attend such classes. Remaining students and staff then remain unaware about library services and facilities. The common lecture and orientation model of teaching does not lead to achieve the desired outcome. Patron-centric strategy like flipped classroom using e-learning method is an extremely useful alternate learning model in this digital age.

FLIPPED CLASSROOM

Flipped classroom is an instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content, often online, outside of the classroom. It is a pedagogical model in which the typical lecture and homework elements of a

course are reversed. The term flipped classroom is widely used to describe almost any class structure that provides prerecorded lectures followed by in-class exercises. The video lecture is often seen as the key ingredient in the flipped approach, such lectures being either created by the instructor and posted online or selected from an online repository.

HOW FLIPPED CLASSROOM WORKS

In a widely used version of flipped classroom, multiple recorded lectures or instructional contents are delivered online to students at home using short instructional videos, online activities, collaborative projects and video lectures. To test what students have learned online, quizzes, activities are conducted. The results of quizzes and activities are generated immediately and according to the feedback students can rerun the lectures and clarify their confusion. Instructors take discussion sessions into a studio where students create, collaborate and put into practice what they have learned from the lectures they view outside the class.

Flipped classroom is not fully online and virtual class but widely used for distributing study materials in advance to the students while teaching them traditional way. It is a hybrid teaching learning method where class time is used to exercises, problem solving, concept development through projects and discussions, interaction and peer collaboration to help students develop higher order of learning objectives. Instructional videos and lecture materials are created by teachers and posted to secure internet websites. In flipped instruction model selected materials which are available online can also be integrated into the course curriculum.

The value of a flipped class is in the repurposing of class time into a workshop where students can inquire about lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities. During class sessions, instructors function as coaches or advisors, encouraging students in individual inquiry and collaborative effort. Flipped classroom are very useful to slow learners as they can work through learning materials repeatedly until the content is understood, while gifted learners can have access to more challenging content to meet their interests and sharpen their intellectual skills.

**ABOUT THE CENTRAL LIBRARY OF MODERN
COLLEGE, PUNE, INDIA**

Here the author is presenting a case study of strategy and free educational tools used at Central Library of Modern College of Arts, Science and Commerce, Ganeshkhind, Pune, India to provide web based services to patrons.

The Central Library of Modern College of Arts, Science and Commerce has been established in the year 1992. Since then library has made consistent progress in terms of collection of books and services provided. The library is well equipped with a growing number of books, journals, magazines along with electronic resources like e-books, e-Journals, e-Databases, CDs, DVDs, Audio Books, Library website, Institutional Repository, etc.

The library provides open access to all the students. The library is user-friendly, techno-driven and automated with bar code technology; uses open source softwares are applied. It offers various services along with some innovative practices which were largely appreciated by National Assessment and Accreditation Council (NAAC) Peer team members.

The main Purpose of the library is to freely disseminate knowledge and support teaching, research and other academic activities of the college. The library operates on need based approach rather than the usual rules-based treatment.

The patron's strength is more than 4500. Every year students from various backgrounds takes membership. Library conducts orientation and information literacy training programs in the library. Teachers are informed to bring their classes for library orientation and information literacy programs on how to access electronic resources. Since last few years it is observed that only post graduate and few undergraduate students attend such classes and

training programs organized by the library. So many students are not aware about library services and facilities like electronic resources subscribed, research help provided by the library, print subscribed journal article indexing facility, email notifications, current awareness services, library blog, library e-newsletter, etc. The Information as well as instruction needs of patrons are changing in recent years. No one including teachers wants to attend a 60minutes session on library as they feel that now they can search everything on the internet and get information. Therefore online instructions in the form of live sessions or tutorial will fulfill their need. So libraries are now shifting to online instruction and information literacy programs. In developing countries still many librarians are not aware about how to create such instructional material and to create a site of platform for patrons. Most of the library websites are outsourced and managed by some company.

The main motto of library is “to give maximum information for maximum number of time by maximum number of ways in minimum time”. To fulfill this motto, the library is consistently making efforts. To reach each and every students and teaching staff and fulfill their information needs, the library has taken consistent efforts in last few years with the help of open educational tools and web technology. AVOID repetition.

II. EDUCATIONAL TECHNOLOGIES

Fig.1represents the updated list of all the educational technologies now a day used all over the world in the form of a periodic table, which covers social networks, online learning technologies, multimedia technologies, coding technologies, classroom technologies, hardware and educational conferences.

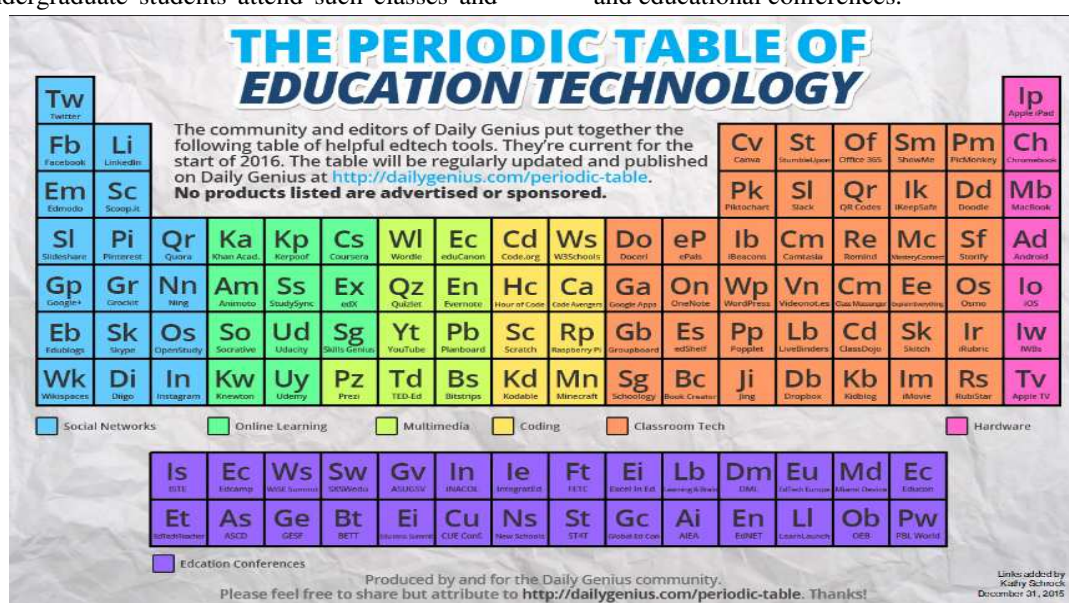


Fig.1: Periodical Table for Educational Technology accessed from
(http://www.schrockguide.net/uploads/3/9/2/2/392267/edtech_periodic-table.pdf)

Educational Technologies:

- **Social Networks:** Twitter, Facebook, Edmodo, Slideshare, Google+, Edublogs, Wikispaces, LinkedIn, Scoop.it, Pinterest, Grockit, Skype, Diigo, Quora, Ning, Openstudy and Instagram
- **Online Learning technologies:** Khan academy, Animoto, Socrative, Knewton, Kerpoof, StudySync, Udacity, Udemy, Corsera, edX and Skills Genius.
- **Multimedia technologies:** Prezi, Wordle, Quizlet, YouTube, TED-Ed, eduCanon, Evernote, Planboard and Bitstrips
- **Coding technologies:** code.org, Hour of Code, Scratch, Kodable, W3Schools, Code Avengers, Raspberry pi and Minecraft
- **Classroom Technologies:** Doceri, Google Apps, Groupboard, Schoology, ePals, OneNote, edShelf, Book Creator, Canva, Pikochart, iBeacons, WordPress, Popplet, Jing, Stumbleupon, Slack, Camtasia, Videonot.es, LiveBinders, Dropbox, Office 365, QR Codes, Remind, Class messenger, ClassDojo, Kidblog, Showme, iKeepSafe, Mastery Connect, Explain Everything, Skitch, iMovie, Pinkmonkey, Doodle, Storify, Osmo, iRubric and Rubistar
- **Hardware Technologies:** Apple iPad, Chromobook, MacBook, Android, iOS, IWBs and Apple TV.
- **Education Conference:** ISTE, Edcamp, WISE Summit, SXSWedu, ASUGSV, iNACOL, Integrated, FETC, Excel in Ed, Learning and Brain, DML, EdTech Europe, Miami Device, Educon, EdTech Teacher, ASCD, GESF, BETT, Education Innovation Summit, CUE Conf, New Schools, ST4T, Global Educational Conferences, AIEA, EdNET, Learn Launch, OEB and PBL World.

Libraries in developed countries are using most of these technologies and are visible on their websites. But in developing and underdeveloped countries many library professionals are not aware and trained about using these technologies.

III. FLIPPED CLASSROOM FOR INFORMATION LITERACY PROGRAMS

The central library has created a flipped classroom for information literacy and library orientation using wikispaces classroom and other educational technology. Few of them are discussed here.

Wikispaces Classroom:

Wikispaces is an open classroom management platform where teachers and students can communicate and collaborate. It is a social writing platform for education totally free of cost for teachers and students. It provides an easy online platform to create a classroom workspace where you and your students can communicate and work in teams. One can use these wikispaces classroom using any modern browser, tablet and phones too. Millions of teachers and students are using this platform for creative and innovative learning. It gives tools for teachers to quickly and easily create assignments, share resources, make announcements, and foster discussion and community.

Wikispaces helps to create a safe, private network for your students, connect and communicate using a familiar newsfeed and monitor complete history of student discussions, writing, and file uploads. Students and teachers can collaboratively edit pages using its visual editor. One can embed content from around the web, including videos, images, polls, documents, and more. For each and on every page comments section is there for discussion and comments. Wikispaces helps teachers to create individual or group assignments in seconds and sets in calendar assignments start and end dates. It automatically publishes projects to entire class.

Central Library or Modern College or Arts, Science and Commerce, Pune has created wikispaces classroom to give library orientation and information literacy programs to all patrons and even to visitors. The basic aim is to reach each and every student and with this each student can learn and work wherever and whenever they can.

Below figure 2 shows the MCASC-information literacy wikispaces homepage.

The video of introduction to library is embedded in the wikispaces. Various new educational tools are used here to create this wikispaces classroom interactive and innovative. To create this flipped classroom following technologies and tools are used.

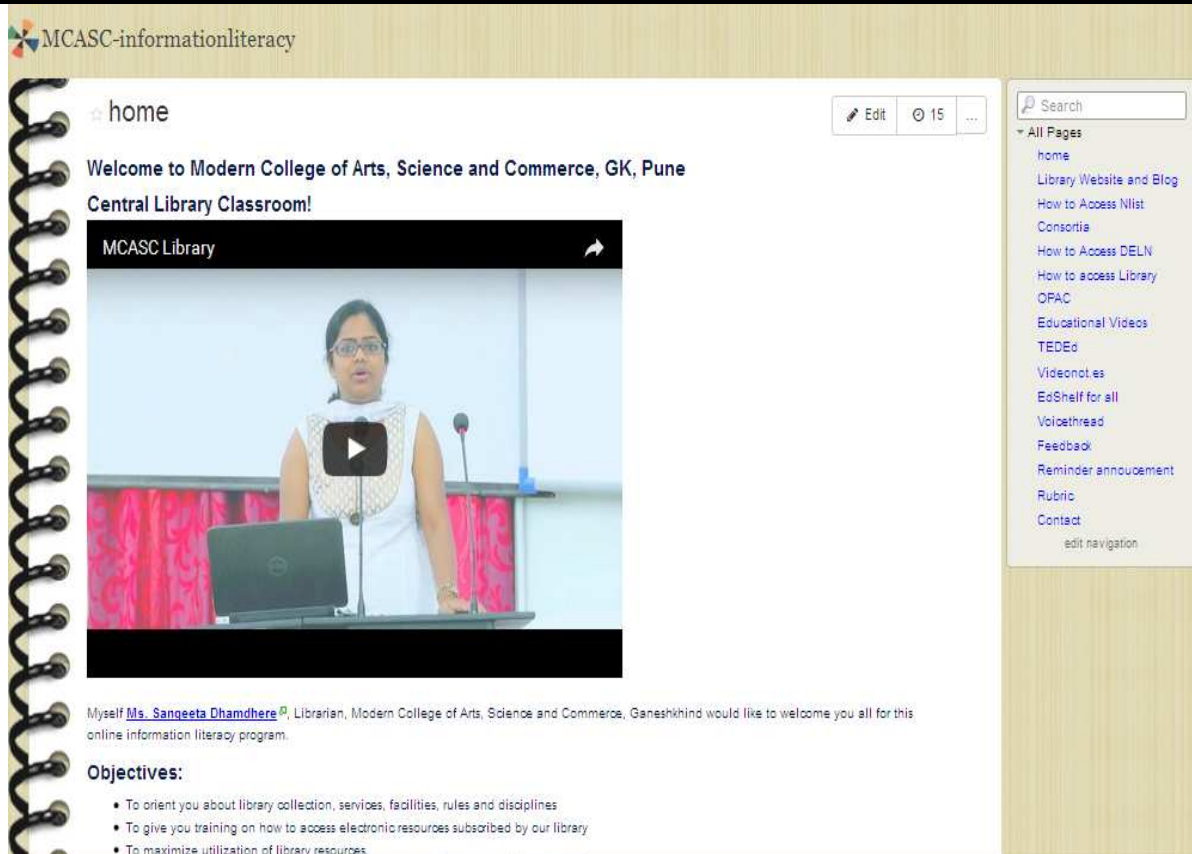


Fig.2: Information Literacy Classroom of Modern College Library

Thinglink:

Thinglink is a leading provider of an interactive images and video interaction tool in classroom which can help students develop 21st century skills and enrich their enthusiasm for learning. It works on all modern web browsers as well as iPad, iPhone and Android. One can use tagging platform to layer images and videos with web links, photos, texts, videos, polls, Google products and other great content. Libraries too can use this tool to make their presentations more interactive. Modern College Central Library has used this Thinglink to give overview of library website contents.

Below Fig.3 shows Thinglink for Modern College, Ganeshkhind Central Library web pages.

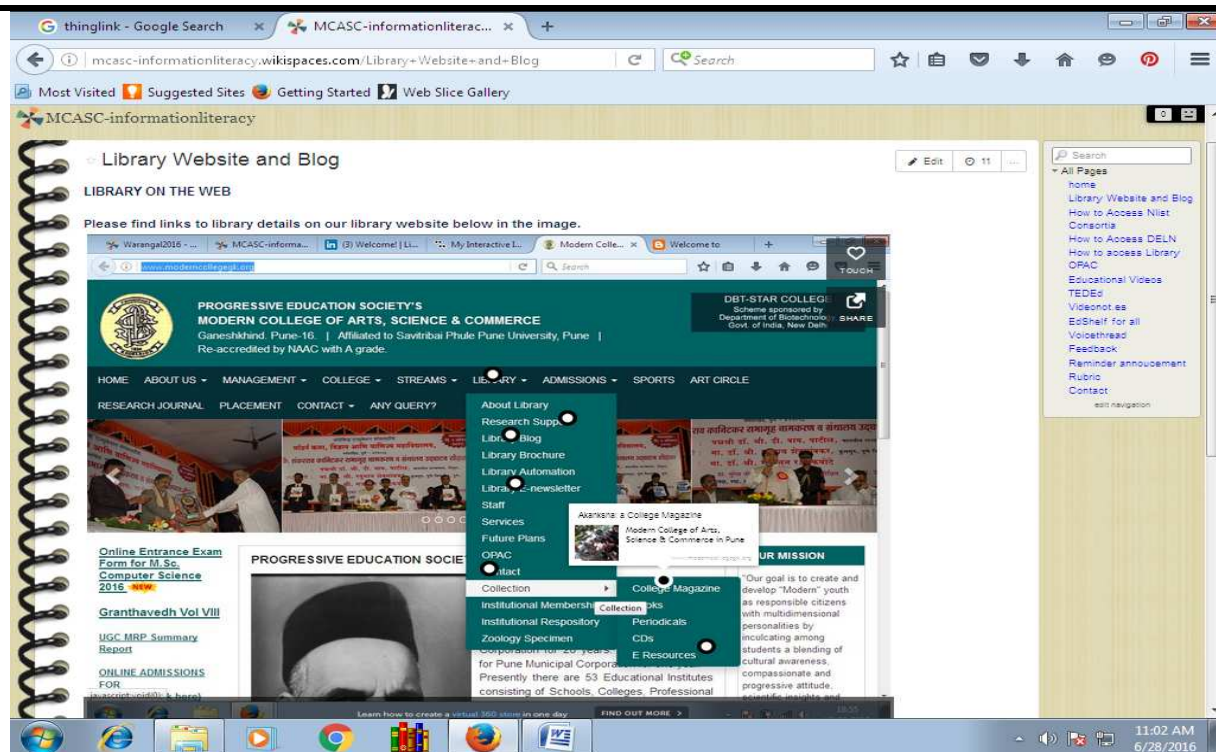


Fig.3: Thinglink of Modern College Library website

Padlet:

Padlet is a digital canvas to create beautiful projects and easiest way to share and collaborate in the world. It is an empty page works like a sheet of paper where you can post or upload whatever you like whether it is images or snap or selfie or videos or documents or text altogether with anyone from anywhere via device like PC, ipad,

phone, etc. It is widely used for teaching, brainstorming, note taking, website publishing, bookmarking, blogging or selling good. We can make it more beautiful by choosing custom wall papers and themes given. It is very flexible so it is called as inspiration board.

Figure 4 shows how Modern College Library used Padlet to collect feedback from users.

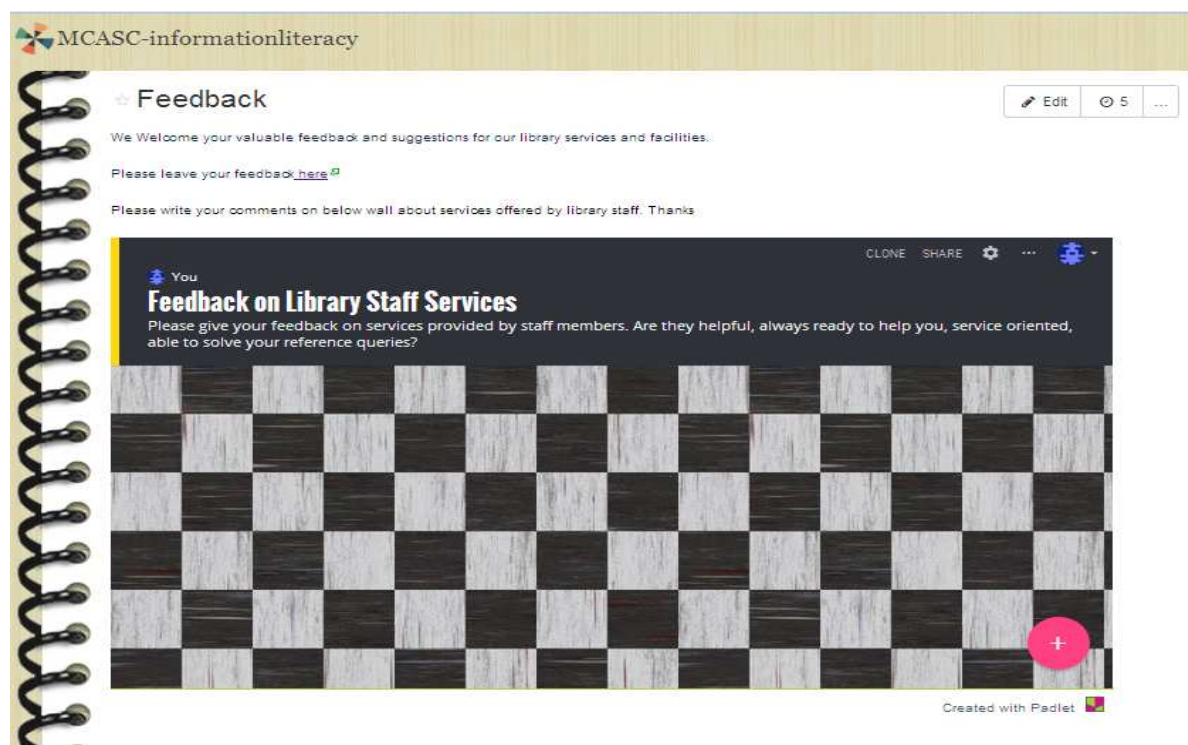


Fig.4: Padlet created for collecting feedback

Screencast-O-Matic:

It is a tool to create and share screen recordings. This tool is used by many educators, businesses for fast recording app to create a video file, share on YouTube, or even uploading to a custom branded site. In its free feature it allows users to record up to 15 minutes on-screen activity for short tutorials, visual presentations, and communicates while you demonstrate and publish on YouTube directly or save as MP4 video file. It supports screen plus webcam recording also.

Using this tool libraries can give information literacy training or can demonstrate how to access online electronic resources, OPAC, databases etc. Modern College Central Library used this tool for demonstrating how to access OPAC and NList and Delnet Consortia resources.

Below figures 5 and 6 shows how the demonstrations created by library are embedded in library wikispaces flipped classroom

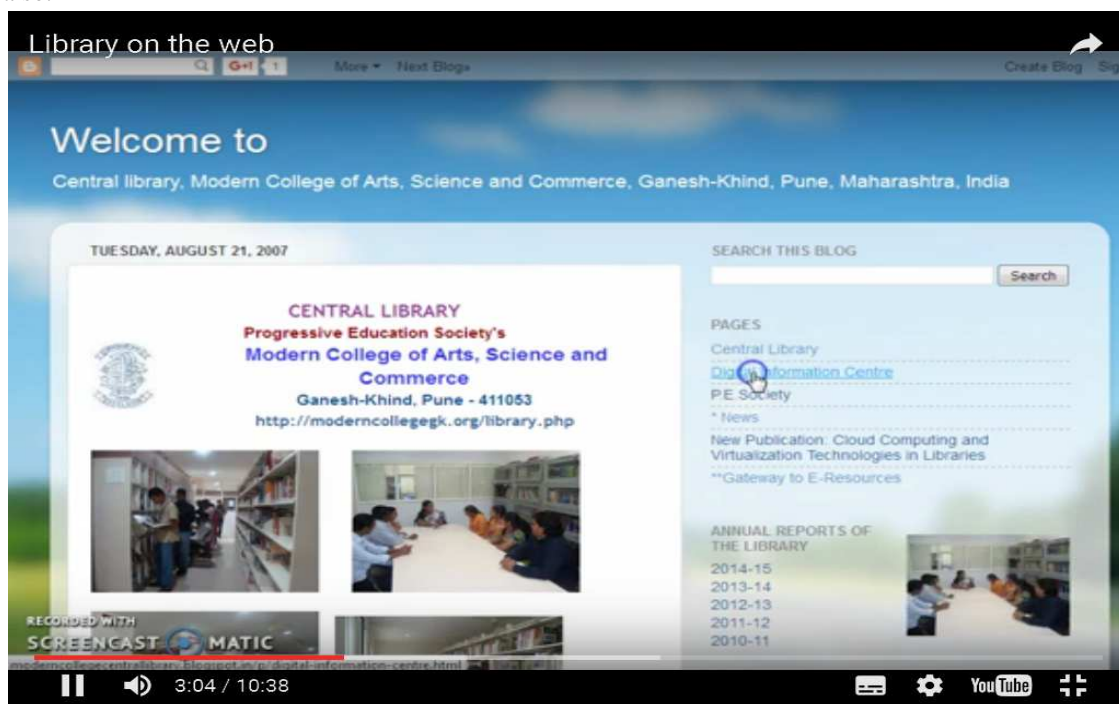


Fig.5: Library on the web demonstration created using Screencast-O-Matic

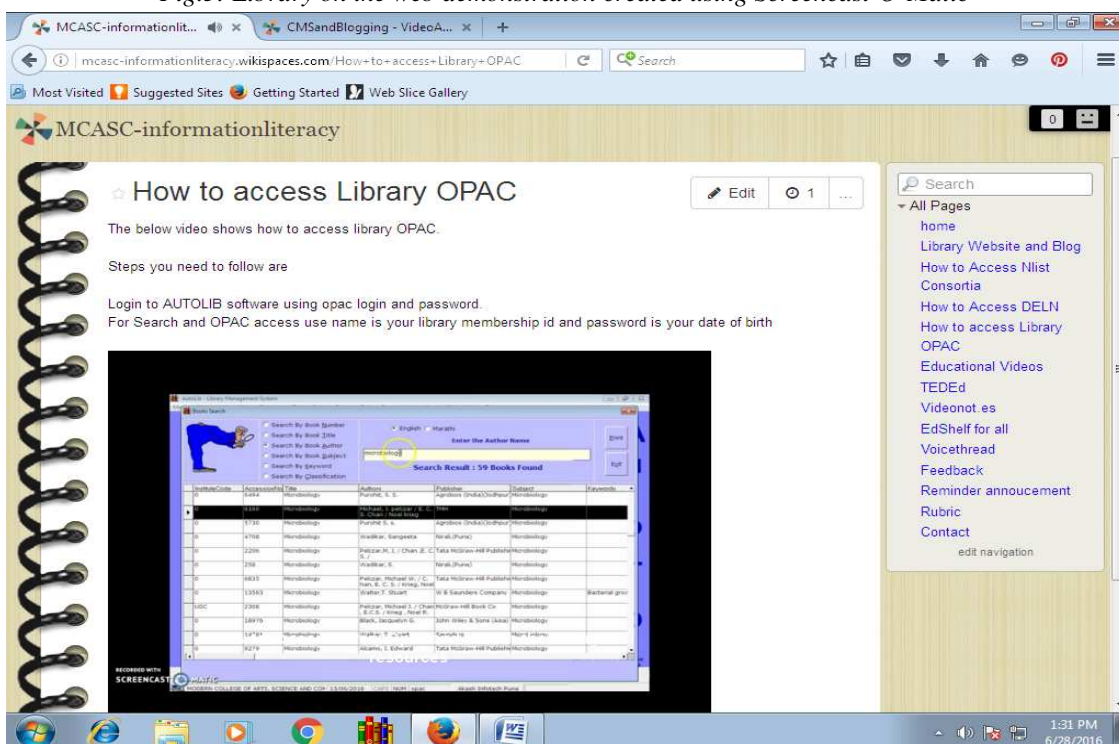


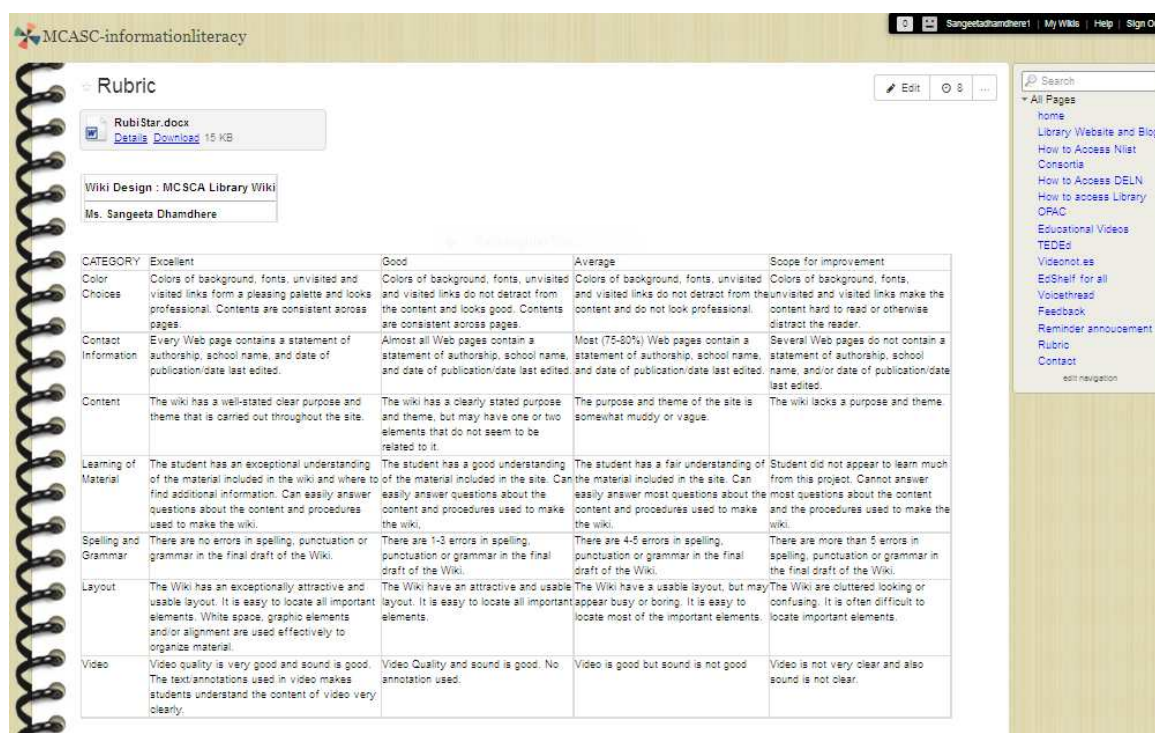
Fig.6: Demonstration on how to access library OPAC using Screencast-o-matic tool and embedded in Wikispaces class

Rubistar:

Rubistar is a tool to help the teacher who wants to use rubrics, but does not have the time to create quality rubrics. Rubrics have become popular with teachers as a means of communicating expectations for an assignment, providing focused feedback on works in progress, and grading final products. According to Heidi Andrade It is defined as a document that articulates the expectations for an assignment by listing the criteria, or what counts, and describing levels of quality from excellent to poor. It is used to grade student and evaluate their work or assignments. Rubrics help students to develop

understanding and skill and also make dependable judgments about their own work quality. It helps students as well as teachers to clarify the standards for a quality performance and to guide ongoing feedback about work in progress.

Below Figure 7 shows how Modern College Library used Rubistar to create Rubric to assess or collect feedback from the students. Libraries and teachers can use this tool for assessing or evaluating the student's assignments too or how much they understand from the lectures.



CATEGORY	Excellent	Good	Average	Scope for improvement
Color Choices	Colors of background, fonts, unvisited and visited links form a pleasing palette and looks professional. Contents are consistent across pages.	Colors of background, fonts, unvisited and visited links do not detract from the content and looks good. Contents are consistent across pages.	Colors of background, fonts, unvisited and visited links do not detract from the content and do not look professional.	Colors of background, fonts, unvisited and visited links make the content hard to read or otherwise distract the reader.
Contact Information	Every Web page contains a statement of authorship, school name, and date of publication/date last edited.	Almost all Web pages contain a statement of authorship, school name, and date of publication/date last edited.	Most (75-90%) Web pages contain a statement of authorship, school name, and date of publication/date last edited.	Several Web pages do not contain a statement of authorship, school name, and/or date of publication/date last edited.
Content	The wiki has a well-stated clear purpose and theme that is carried out throughout the site.	The wiki has a clearly stated purpose and theme, but may have one or two elements that do not seem to be related to it.	The purpose and theme of the site is somewhat muddy or vague.	The wiki lacks a purpose and theme.
Learning of Material	The student has an exceptional understanding of the material included in the wiki and where to find additional information. Can easily answer questions about the content and procedures used to make the wiki.	The student has a good understanding of the material included in the site. Can easily answer questions about the content and procedures used to make the wiki.	The student has a fair understanding of the material included in the site. Can easily answer most questions about the content and procedures used to make the wiki.	Student did not appear to learn much from this project. Cannot answer most questions about the content and the procedures used to make the wiki.
Spelling and Grammar	There are no errors in spelling, punctuation or grammar in the final draft of the Wiki.	There are 1-3 errors in spelling, punctuation or grammar in the final draft of the Wiki.	There are 4-5 errors in spelling, punctuation or grammar in the final draft of the Wiki.	There are more than 5 errors in spelling, punctuation or grammar in the final draft of the Wiki.
Layout	The Wiki has an exceptionally attractive and usable layout. It is easy to locate all important elements. White space, graphic elements and/or alignment are used effectively to organize material.	The Wiki have an attractive and usable layout. It is easy to locate all important elements.	The Wiki have a usable layout, but may appear busy or boring. It is easy to locate most of the important elements.	The Wiki are cluttered looking or confusing. It is often difficult to locate important elements.
Video	Video quality is very good and sound is good. The text/annotations used in video makes students understand the content of video very clearly.	Video Quality and sound is good. No annotation used.	Video is good but sound is not good	Video is not very clear and also sound is not clear.

Fig.7: Rubric created for collecting feedback on Wikispaces classroom

Jeopardy Labs Game:

Jeopardy is danger or risk. Jeopardy is America's favorite game. Jeopardy Labs allows us to build our own jeopardy template without PowerPoint. The games we make can be played online from anywhere in the world. One can create Jeopardy Game of own choice and theme without login also. It is very easy to create the game just by adding title and categories one needs to add answer and create question for points given to specific category questions.

Below Figure 8 shows how one can create the Jeopardy Game.

Figure 9 shows another Jeopardy game created by library for one Credit based course. It is just a fun which one can play in making groups of students. Points can be selected by the group and depending on their answer points added to their credit.

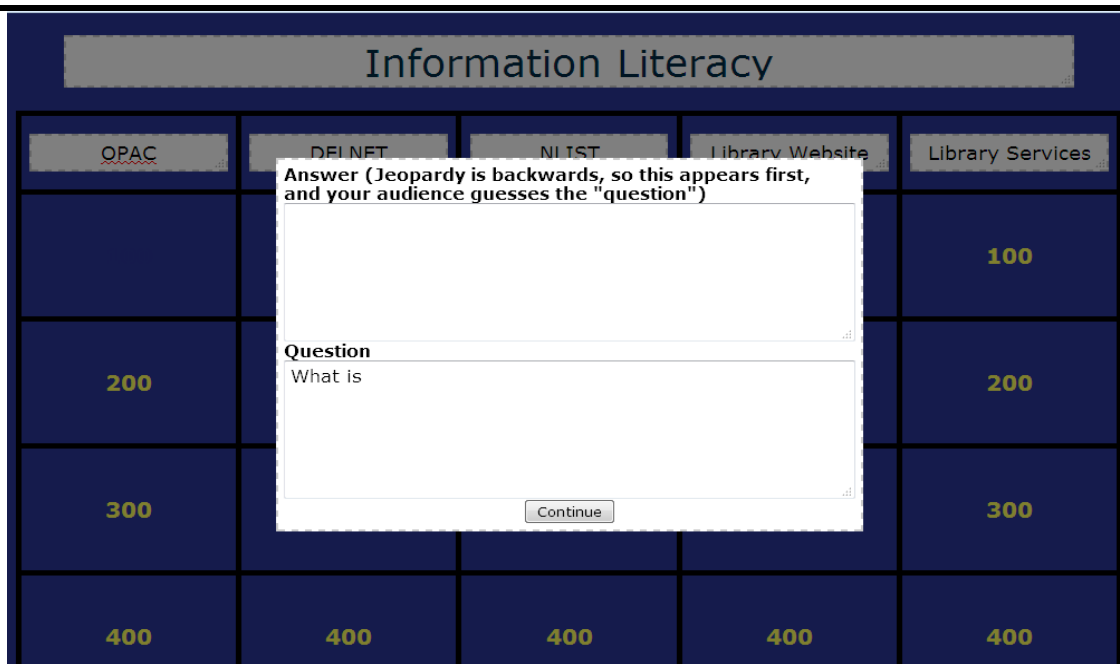


Fig.8: How to create Jeopardy Game

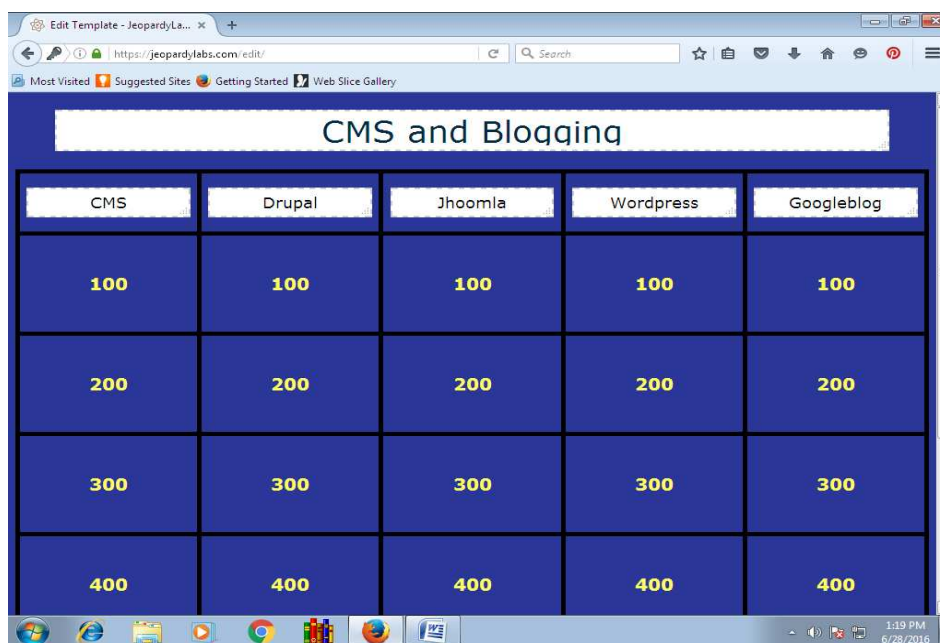


Fig.9: Jeopardy Game for Credit based course Flipped Classroom

Videonotes:

It is open source tool for taking notes while watching video for future reference. All the notes taken are automatically synchronized with the video and one can just click on a line for the video to jump to the relevant part. We can save or integrate these video notes on Google drive and can access them from anywhere. Once we add videonotes we can share or give permission to specific group of students or colleagues to view and whenever we want we can make it private.

Here Modern College Library has created video notes for the tutorial videos they prepared and made them available to the students on the web. Here Librarian has added questions in notes and asked students to answer after watching the video. If students fails to answer they can click on the question and it takes them to the particular strip of video where the answer is there.

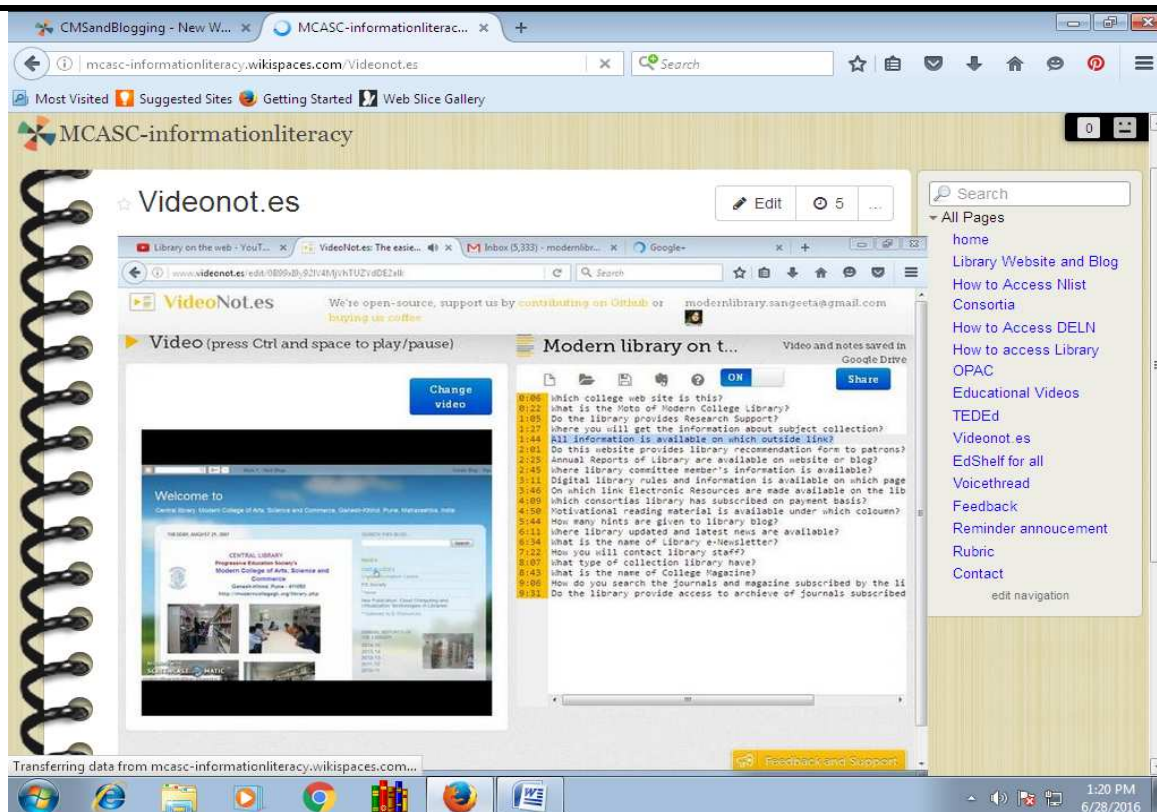


Fig.10: Videonot.es for tutorial video for general test

edShelf:

edShelf is a socially-curated discovery engine of websites, mobile apps, desktop programs, and electronic products for teaching and learning. Anyone can create an account free of cost. For creating a shelf you need to add Title,

Description, privacy (Public or Private) and then you can search for tools or websites or programs related to your topic chosen and add the sources in your tray. You can filter the sources by price, platform, subject, age, category and sort by popularity, date added and last update.

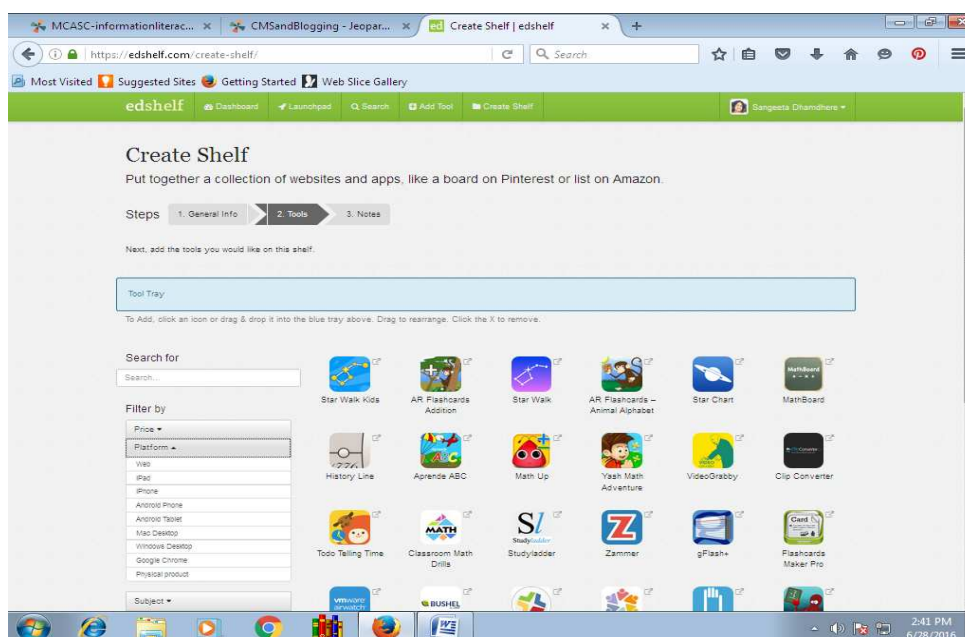


Fig.11: How to create edShelf and add tools to tray

Here an attempt has been done by Modern College librarian to create shelves for librarian, various faculty

teachers and students as well.

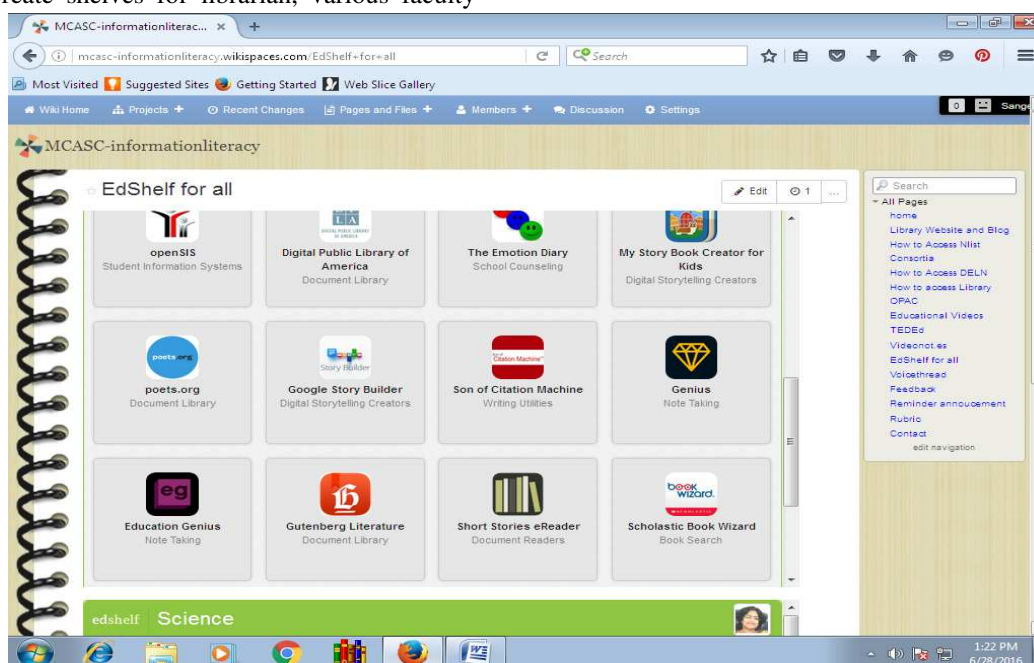


Fig.12: EdShelf for all created by Central Library

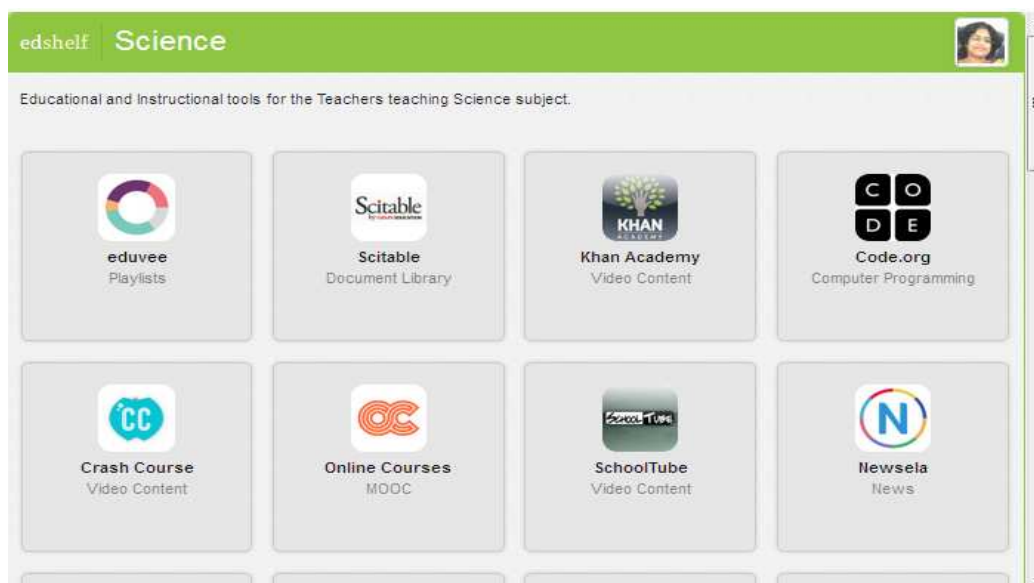


Fig.13: edShelf for Science patrons created by Central Library

Flubaroo:

It is a free open access tool to create multiple choice based or fill-in-blank type assignments quickly. Teachers need to create an assignment, then create an answer key for the same then assign and then review the grades. Flubaroo not only used for grading but it can Compute average assignment score, average score per question, flags low-scoring questions, shows a grade distribution graph, gives the option to email each student their grade,

and an answer key and let teacher send individualized feedback to each and every student.

Audacity and Vocaroo:

Audacity is a free open source digital audio editor and recording computer software application, available for all operating systems while Vocaroo is a quick and easy way to share voice messages over the interwebs. Audacity is used for post processing of all types of audio including podcasts. We can add effects such as normalization,

trimming, fading in and out, scrub, cut, copy and paste within limited levels of undo, mix the tracks, noise and vocal reduction and isolation, precise adjustments to the audio speed and pitch and import or export WAV, MP3, AIFF, AC3, AAC, AMR file formats.

Video Ant:

It is another web-based video annotation tool for mobile and desktop devices used to add annotations, or

comments, to web-hosted videos. VideoAnt-annotated videos are called as “Ants”. To create video ants one need to create a user account and save collections of Ants. Authenticated users can manage their Ant Farm. You can export annotations in various formats. You can embed your ants on website, wikispaces, LMS or any HTML page.

Below Figure 14 is example of VidoAnt prepared by Modern College, Central library for demonstration video.

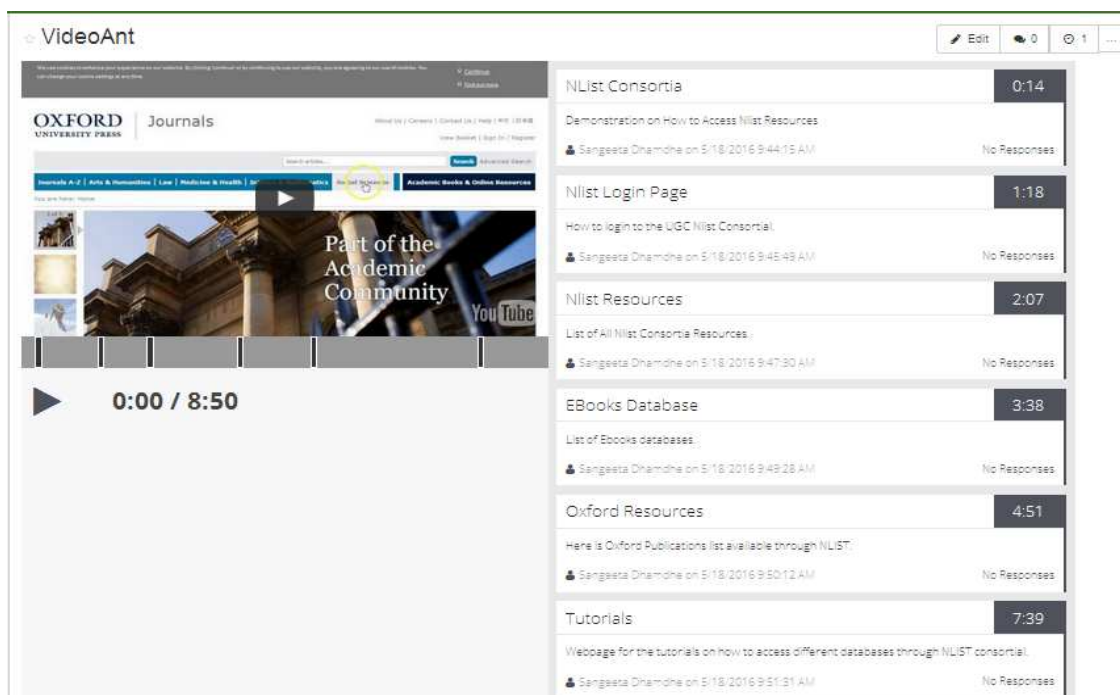


Fig.14: Videoant for Information literacy demonstration video

Voicethread:

Voicethread is one of the most diverse communities in the world and that is by design. It is more human way to connect. One can participate in this using voice, video or text in comment box using any computer, device, internet connection or mobile. Colleges can integrate it in their LMS, ERP, website or HTML pages like Video ant.

Below figure 15 shows how Voicethread is added in the Information literacy video prepared by Modern College, Ganeshkhind library to help their patrons and increase participation of their patrons.

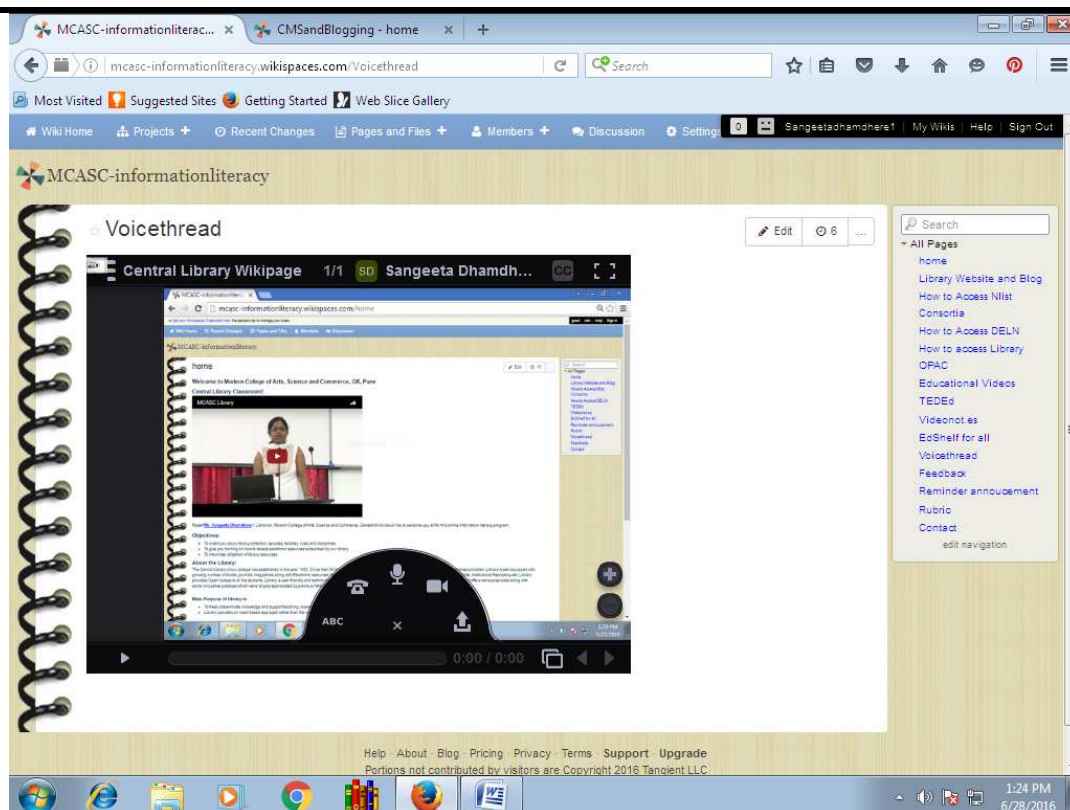


Fig.15: Voicethread added in the Information literacy video

Ted-Ed:

Ted-Ed is an education initiative which aims to amplify the voices and ideas of teachers and students around the world. Any scholar can create worth sharing lesson, new topics and spread their great ideas on this platform to learners. It is growing library of lessons. It is good platform for collaborative research. The lessons or educational videos uploaded on the TED platform easily create customized questions and discussions around the

video. We can distribute lesson publicly or privately and track its impact on community, students, individuals we shared. Till date 185,903 lessons are created and 10, 183, 478 questions are answered. (28/06/2016, 2.55pm) ed.ted.com

Below is the example of Ted lesson uploaded by Modern College Central Library.

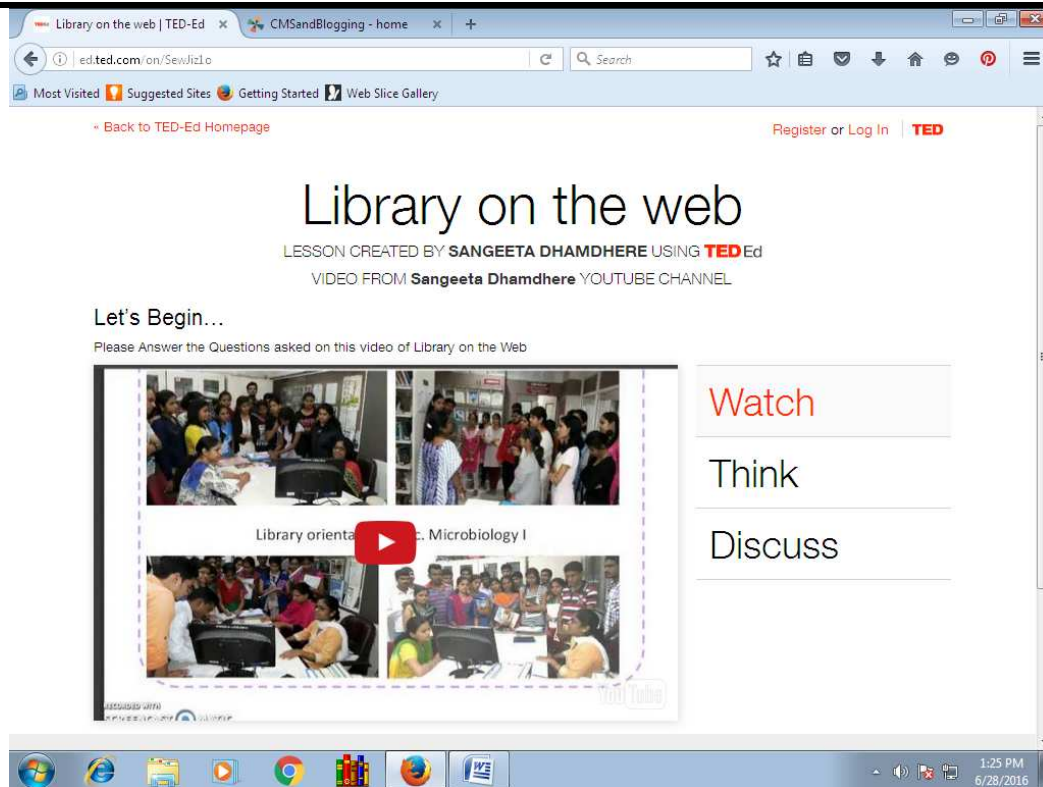


Fig.16: TedTalk on TED-Ed

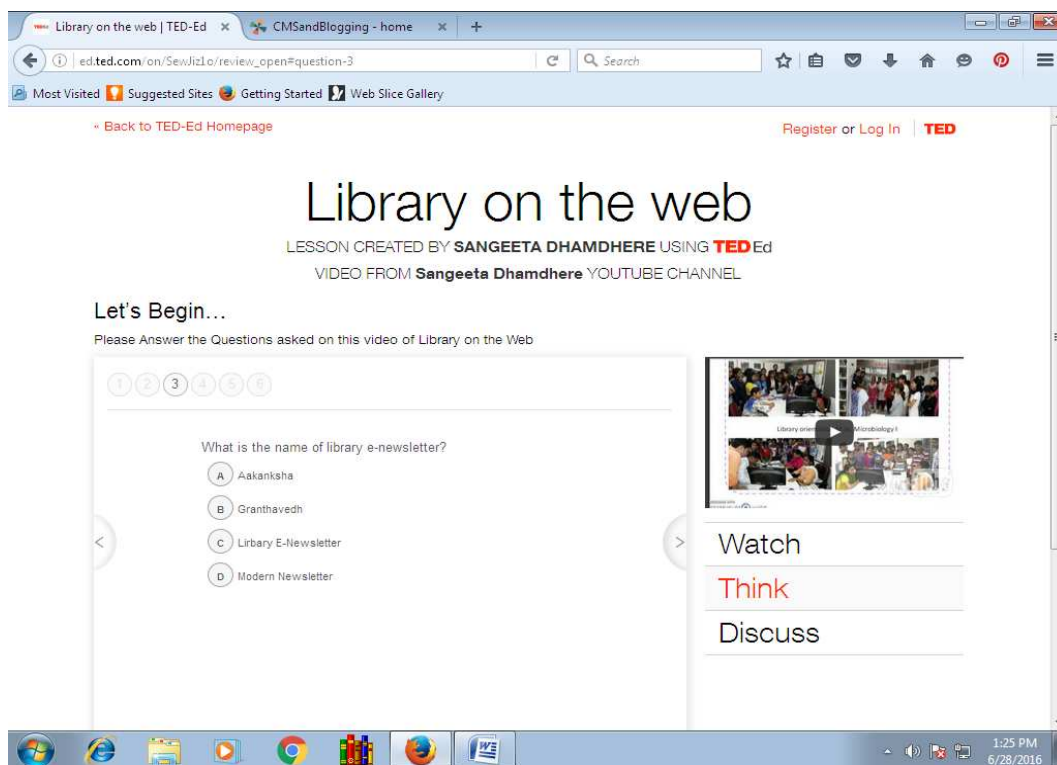


Fig.17: TedTalk on TED-Ed open for discussion and think

The access to education Video links is given on the wikispaces for patrons' reference purpose. Students, researchers and teachers can access the educational videos including practical videos prepared by reputed

organization including initiatives taken by Government of India through this page. Figure 18 shows the page of Educational Videos portal.

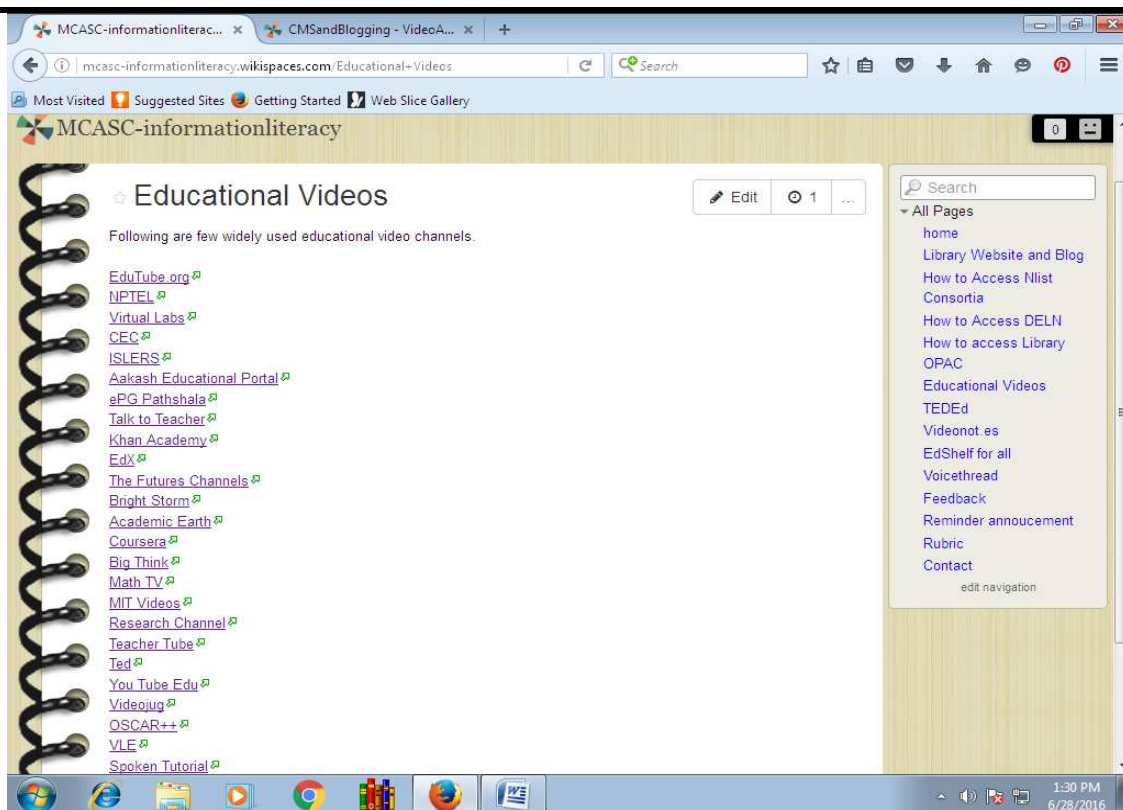


Fig.18: Educational Videos portal on wikispaces

On Wikispaces option are given to add links, embed videos and upload various files on wikispaces to provide instructional and study material to the students. So this is useful for libraries to upload related videos, tutorials and

pdfs, ppts for patrons use. Below Figure 19 and 20 shows addition of videos and pdfs, ppts of how to access various electronic resources from NLIST consortia and DELNET.

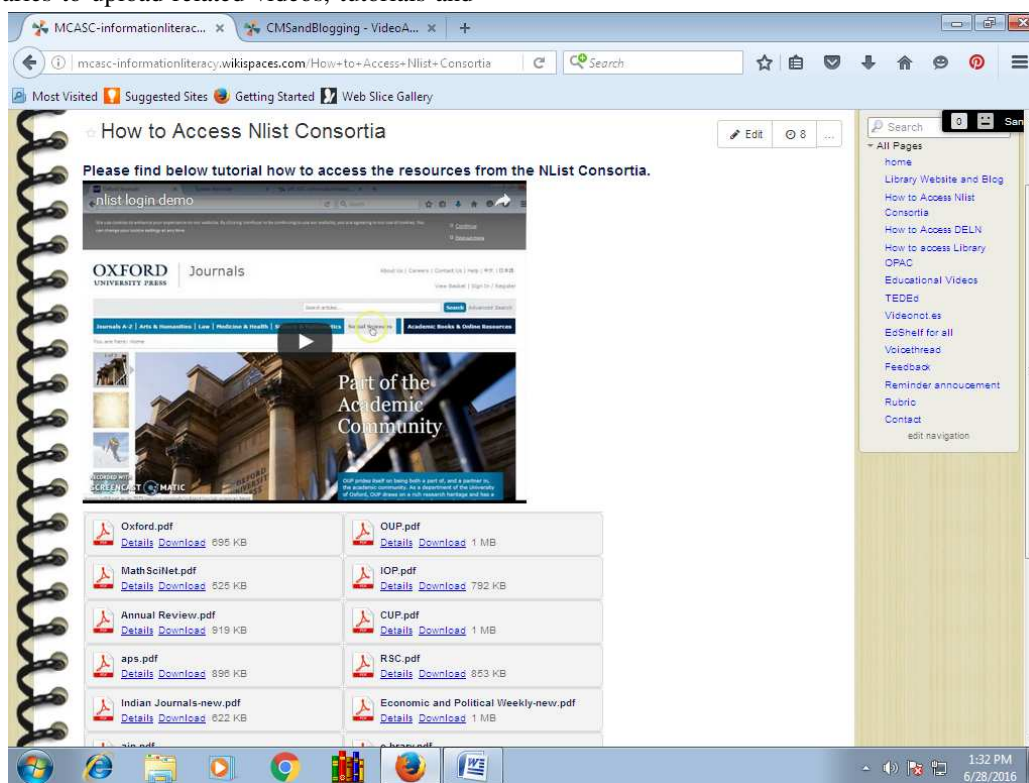


Fig.19: Instructional materials for how to access various electronic resources from UGC NLIST consortia

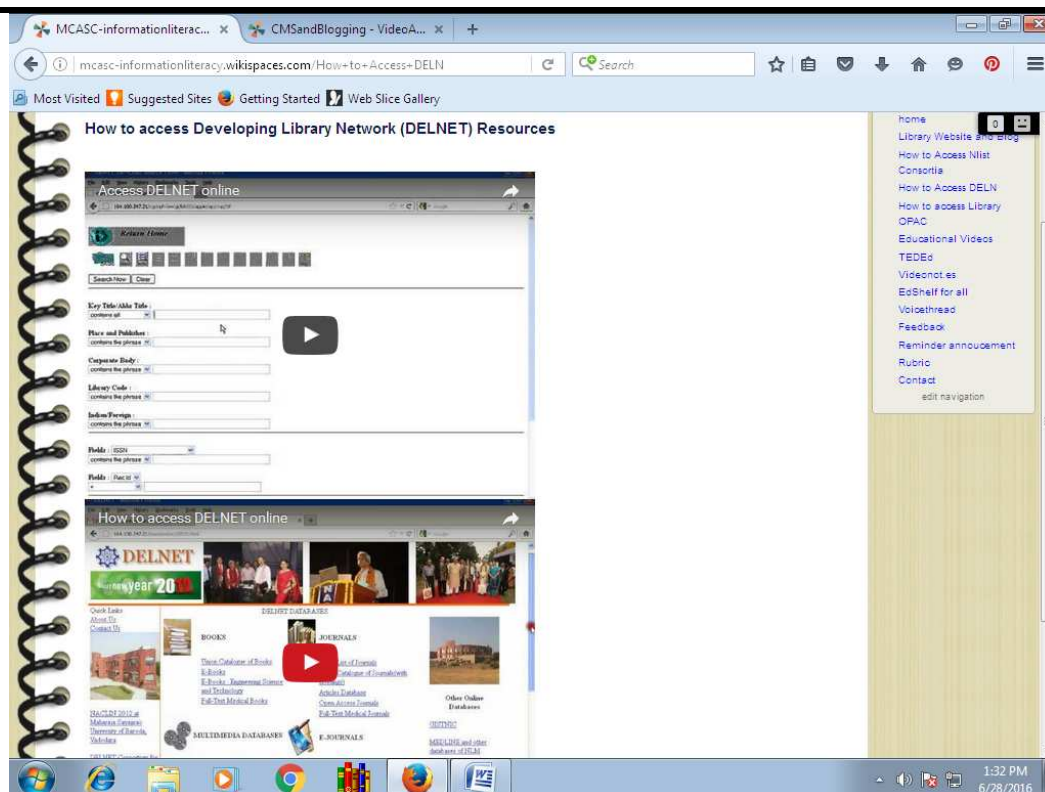


Fig.20: Instructional materials for how to access various electronic resources from DELNET consortia

Along with above Online Information Literacy Flipped Classroom library is continuously giving efforts to use open source tools to provide various services to users.

Flipped Classroom for Credit based Course:

From current academic onwards library is starting delivering one short term credit based course “Content Management System and Blogging” for the undergraduate as well as Post Graduate Students. The classes and instructional material will be provided online

Below are few best practices and initiatives taken by Central Library, Modern College of Arts, Science and Commerce, Ganeshkhind, Pune using new educational technologies.

using variety of educational tools available. Few of them are discussed above. The study material is already uploaded and this class will be available only to registered members in private mode.

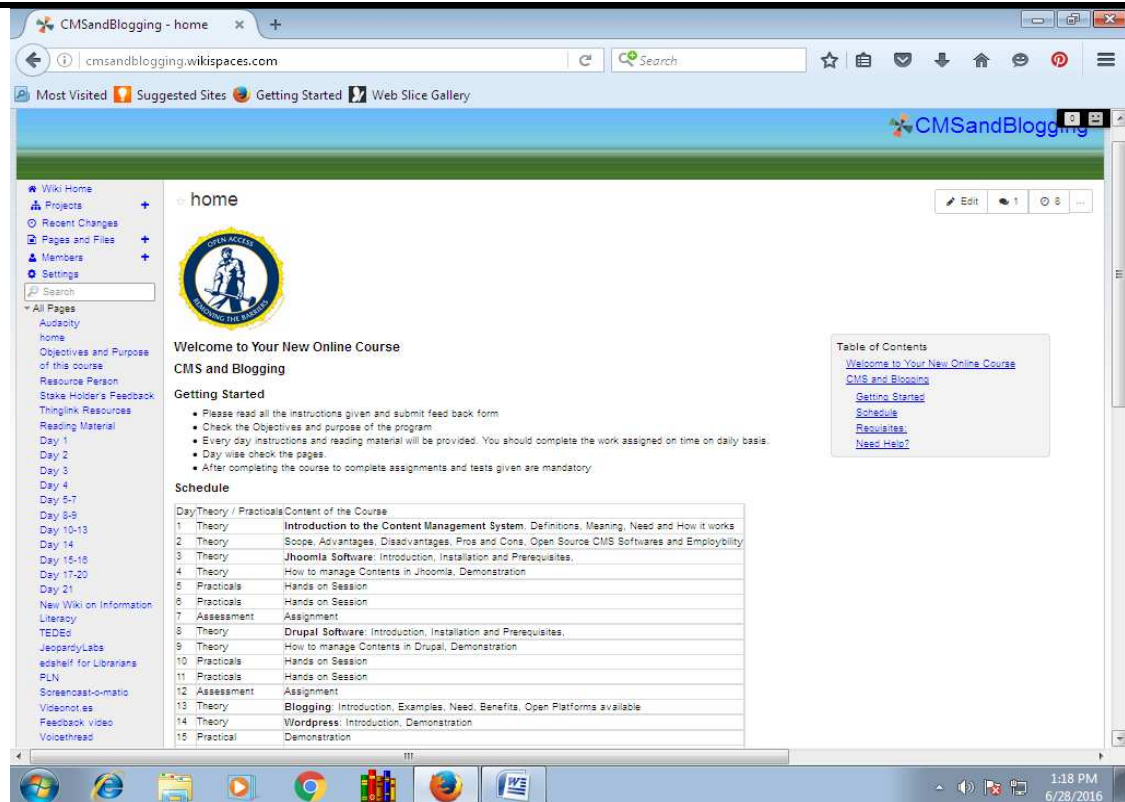


Fig.21: Wikispaces Classroom for Credit Based Course

Google Groups:

Librarian has created Google groups for teaching staff and faculty wise students few years back to send library updates and education related news. On daily basis the

library updates patrons. Teachers are updated with new educational news, technologies, library updates, Government resolutions, etc.

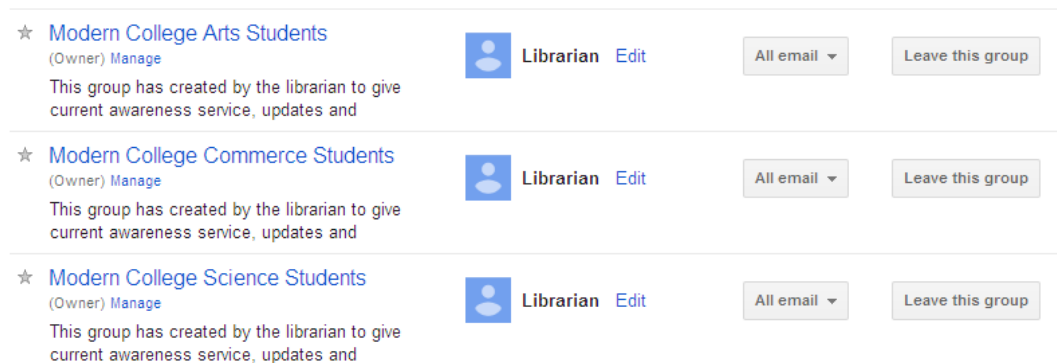


Fig.22: Google Groups for Students

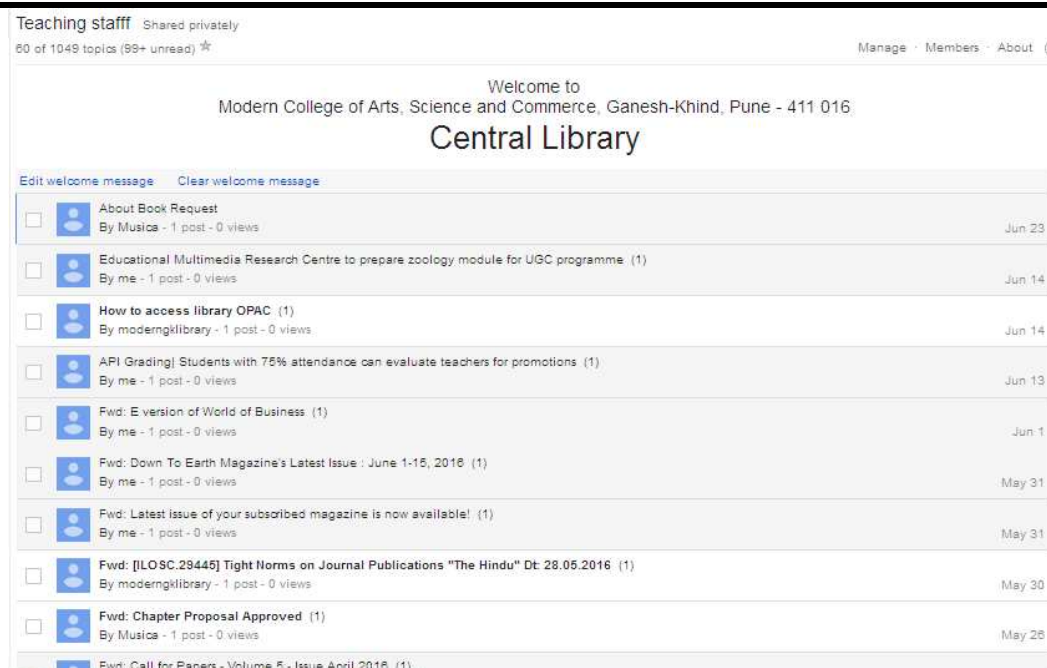


Fig.23: Google Group for teaching staff

Library website:

Library website gives almost all information about the library collection, staff, its services, facilities and publications. Below is example of library web pages of library on Modern College, Ganeshkhind website.

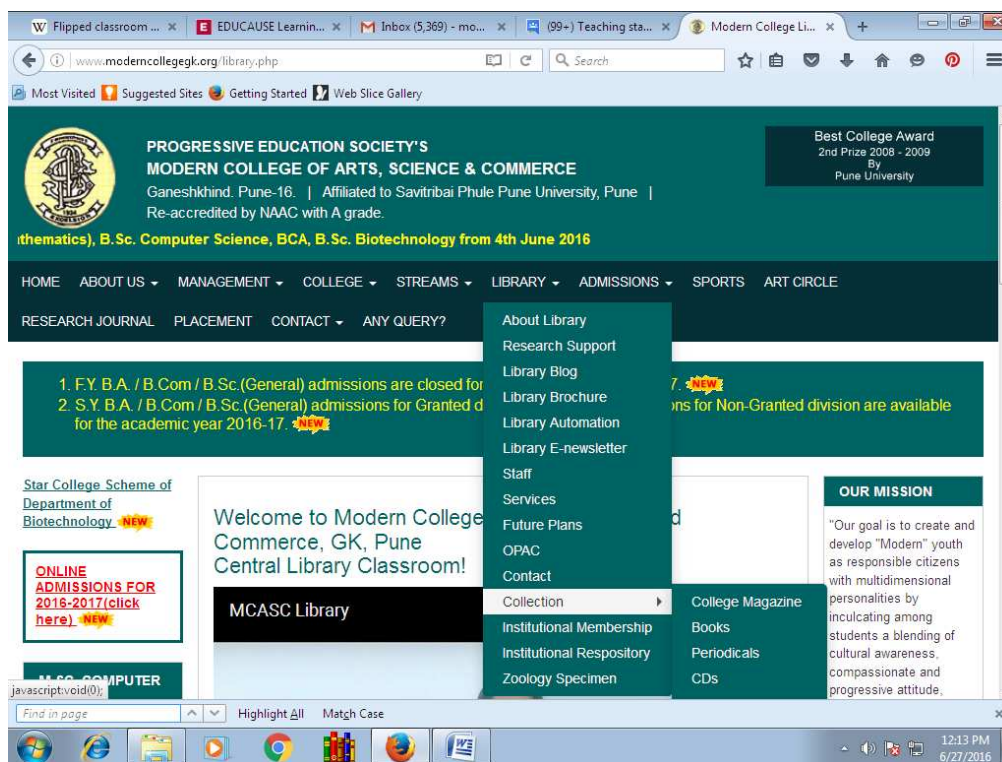


Fig.24: Library web pages on College website

Library Blog:

Library web pages on college website are static and outsourced. Librarian has created separate blog which is

interactive. As the blog is maintained by Librarian it is easy to update and monitor.

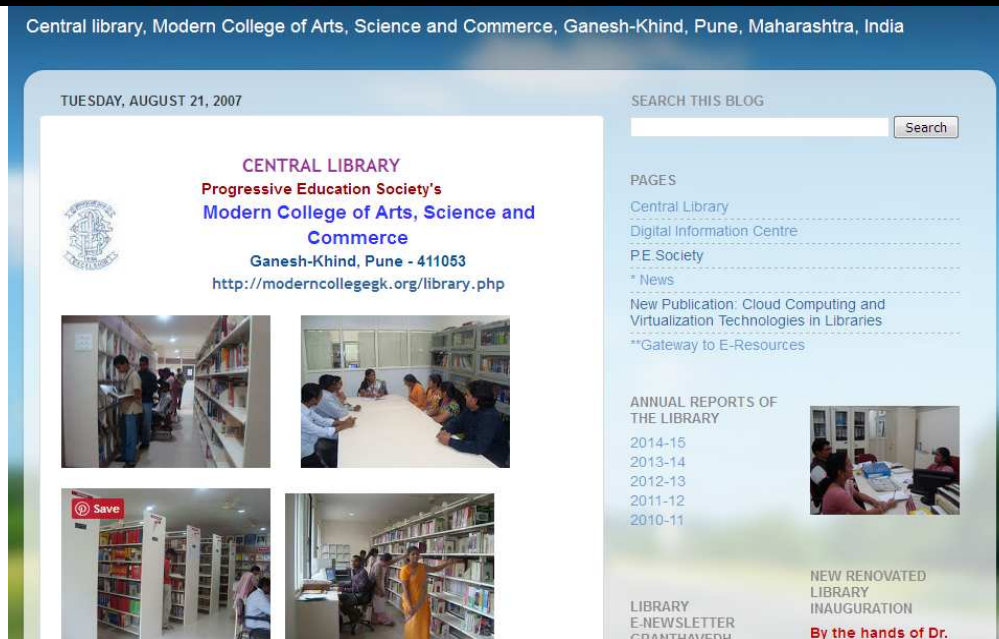


Fig.25: Library Blog

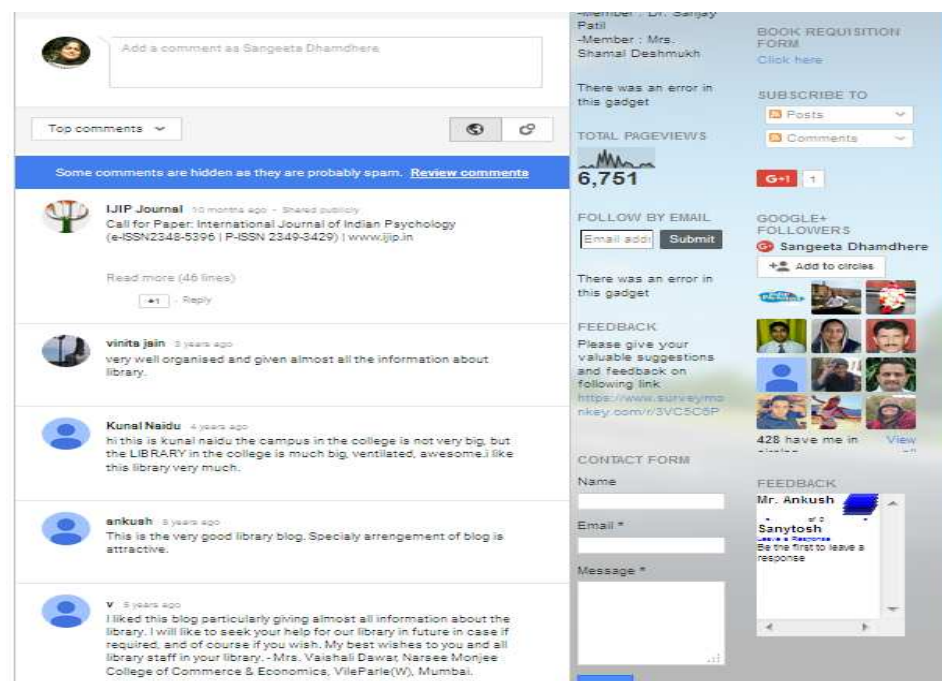


Fig.26: Interactive Library Blog

Library Portal:

To give access to all subscribed as well as online educational scholarly publications library has created a portal where links of classified electronic databases and

scholarly publications are listed. Here librarian used free Google Custom Search Engine to give access to listed resources on library blog.

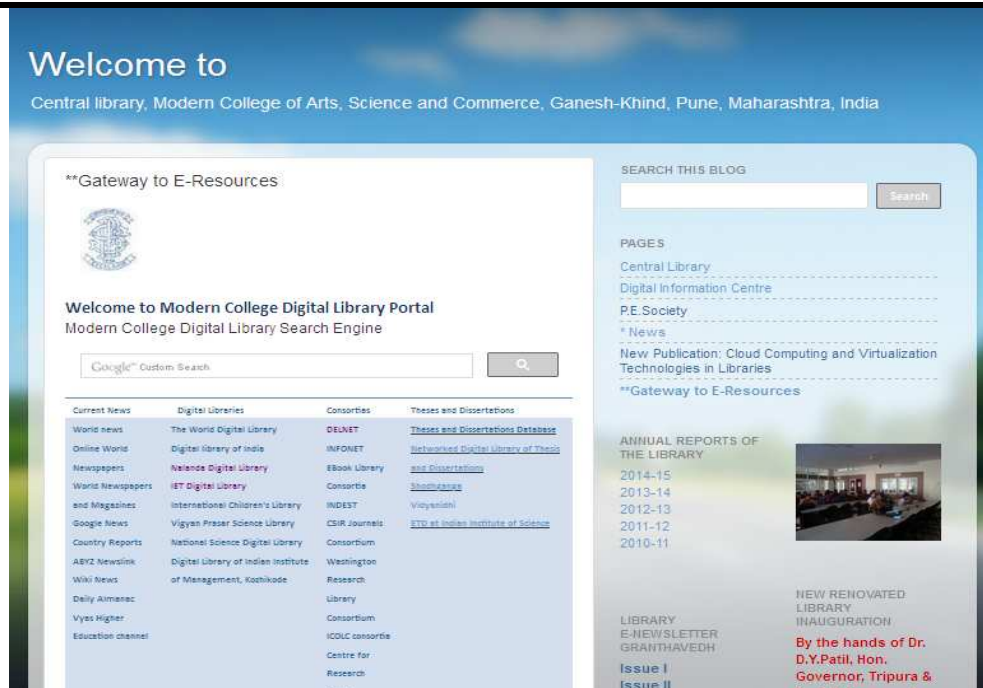


Fig.27: Library Portal with Google Custom Search Engine

Survey Monkey: Library uses survey monkey tool to collect online feedback from patrons since last three years

along with print. It enables to get analyzed report automatically.

Modern College of Arts, Science and Commerce, Ganeshkhind, Pune Library Feedback 2015-16

* 1. Name :

2. Designation
☐ HoD
☐ Staff
☐ Student

3. How often do you visit the library

	Regularly	Once in a Week	Once in a Month	Once in a Term	Once in a Year
Library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Digital Library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Library Website/Blog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Library E-Resource Portal/ Nlist/Deinet site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Library Services
☐ Good
☐ Satisfactory
☐ Not satisfactory

5. Library Reference Services
☐ Good
☐ Satisfactory

Fig.28: Use of Survey Monkey for collecting feedback

Facebook: Modern College, Central Library has created its own facebook page to notify and update readers.

Figure 29 shows the face book page of Modern College library.



Fig.29: Facebook page of Modern College library

E-Newsletter using Publisher:

Library published every year electronic newsletter "Granthvedh". In which library invites book reviews, movie reviews, articles, poems from patrons and involves

them actively to contribute. It also publishes library updates, new arrivals, and activities of library and college.



Fig.30: Library E-newsletter

IV. CONCLUSION

To give maximum information for maximum number of time by maximum number of ways in minimum time, with this motto Central Library of Modern College of Arts, Science and Commerce tries to fulfill information needs of patron by using a variety of educational tools and free open source technologies. In this paper the author tried to give few new technologies and web based best practices that she introduced in her library to give innovative services to students and teachers. At many college libraries no such attempts are made. In western countries top universities are offering such services. But in developing and underdeveloped countries library professionals are not aware what technologies they using behind those services. This paper will be useful for college libraries to introduce new innovative practices in their libraries.

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