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VidhyaSangam : A Cost-Effective Video Learning Solution for Class-Room and Students Personal Use

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Abstract: Advancements in the technologies are changing the class-room set-up. The affordability of the technology is enabling the teachers to use the ICT in the class rooms to deliver the knowledge. Additionally, the penetration on internet is helping to bring new solutions to the learning process. It is also a well known fact that the usage of diverse knowledge delivery methods aids in the better learning outcomes. The video learning solutions from various solution providers have been in use but not adopted in the middle tier schools on a larger scale due to cost implications and lesser content relevancy. Our present effort is to develop and deliver a cost-effective cloud based video leaning solutions to the vast majority of middle tier schools in India. The solution also allows the teachers and the students to easily access the relevant digital content from within the context of the electronic textbook with a single click. The solution is ready for Science and Social subjects for Karnataka State Board Curriculum and is being used by around 25 schools in Bangalore and other parts in Karnataka from the VidhyaSangam (www.vidhyasangam.com) portal.

Keywords: e-learning, video learning solutions, cloud based learning, content curation

1. Introduction

Using technology in the class room is not new e.g Robert (2000) and Clayton et,al(2008). Many of the early solution providers such as Educomp, Edurite and Extramarks have been providing end to end solutions, which includes smart board, dedicated server with content hosted within the school premises. But these solutions are expensive for majority of the schools for adoption. Additionally, content of many of these solutions is aligned with the NCERT syllabus making these solutions unfavorable for adoption by schools following different curriculum (e.g Karnataka State board syllabus) as the content is not relevant.

Secondly, it is becoming very evident in the education psychology research findings (Savita ,2012) and (Prakash, 2013), that the current approach to the teaching and knowledge delivery in the majority of the schools need to be enhanced and augmented with additional methods like using smart boards with video content and images etc. This can help to get the children more engaged in the class room and also improve the learning outcomes.

2. Video Learning Solutions

There have been many players in the market place providing e-learning solutions. E.g. Educomp, Edurite, Extramarks, Tata Class Edge etc. Most of these solutions are focused on CBSE/NCERT curriculum for obvious market penetration reasons. Also, these solutions are very much hardware centric with their own central servers deployed at the schools premises and many times to be purchased with display boards and computers. This caused problem to the schools for quick adoption due cost factors. Also the content was bundled independent of the text-books which causes inconvenience to the teachers in terms of understanding the video context. Also due to nature of solution deployment, it was not easy to update the content. A dedicated staff will have to visit each school and do content updation on regular basis whenever there is change in the syllabus.

Hence there is an obvious cost implication in the updating the content. All these issues caused difficulties to the solution developers as well as to the schools. This resulted in slower adoption of technology based learning in the schools. Out of millions of school in India, only small fraction of the schools have adopted the technology based learning in the class room. The vast amount of content is freely available on the internet in the form of Videos, Images and presentations. However, getting the right digital content is a very painful process as there is lot of searching and selection is involved, to get the content which is highly relevant, high quality and authentic and this leads to precious time been wasted. This presents an "abundance" problem where the user is bombarded with too many choices having more noise than the signal(Figure 1).

Figure 1. Content Abundance Problem

2.1 Internet Technologies and Penetration

With vast penetration mobile phones in the country as well as mobile internet usage (Telecom pguerformance indicator report, 2015) the exposure to technology is exponentially increasing and newer ways of using the technology for improving productivity are being deployed. Mobile and broad-band penetration are continuously increasing. Additionally, Government of India initiatives such as digital India and Start-up India are paving ways for more and more technology based solutions being developed and deployed.

3. VidhyaSangam e-Learning Solution

With the above background, there was a need to develop a cost-effective video learning solution for vast majority of the schools that allows the teachers to easily access the relevant content from within the context of the electronic textbook with a single click for in-class room learning. www.vidhyasangam.com is an effort in this direction. Vidhyasangam is an internet based e-Learning solution. This solution is built on Kaybus (www.kaybus.com) knowledge automation platform. Since there was a gap sensed in the market place for the content for the State Board based curriculum, the first version of the solution was developed for Karnataka State Board curriculum.

The initial version focused only on Science and Social subjects. It was very easy to get the videos on the internet which match the curriculum. The text-books were scanned since the corresponding PDF files were not available. For each of the chapters, important keywords, concepts and activities were identified and corresponding videos were shortlisted. The videos were double checked to ensure that they match exactly with the keyword/activity under focus. Once that is checked, the URL of the video was inserted into the scanned PDF document at the exact location of the keyword inside the text book. To quickly identify the URL, depending on the content type appropriate visual icon such as video icon( ) (Figure 2) or image icon( ) was inserted with the keyword highlighted in pink color as shown in the figure below. This contextualization process helps the teacher to access the relevant video at the right place and time using a single click.

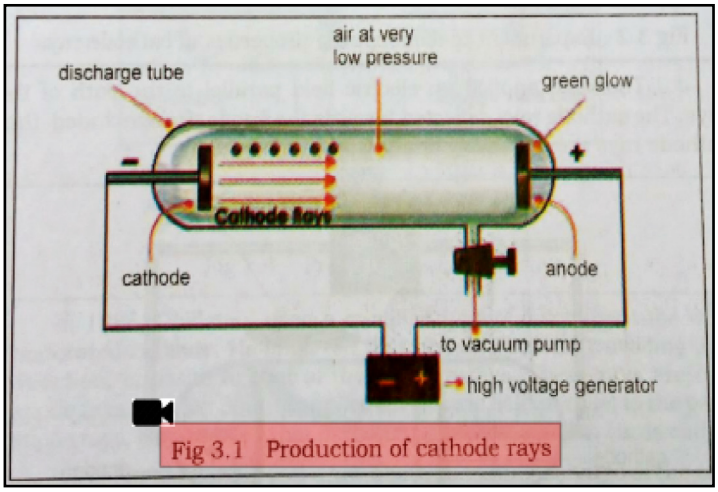

Figure 2. Videos linked contextually into the text book

The Kaybus knowledge automation platform provides the necessary features to manage the content library (PDF files with the inserted video links). Additionally it provides mechanism for user administration (user registration and login, access management and group management). Content can be selectively assigned to schools and students. It also provides analytics to track and monitor the content usage pattern at individual user level.

3.1 Content Harvesting and Curation

As mentioned earlier, there is a vast amount free content available on the internet. The current problem is of "abundance" .Hence,major activity undertaken by Vidhyasangam team was to harvest the relevant content from the Internet and linking the content in the text-books. Around 4000 plus videos are harvested for Karnataka state board Science and Social subjects. Wherever relevant video was not available in-house production of videos was done. Additional care was taken to ensure that:

- The content matches exactly whatever is needed to augment/support the text book content.
- The accent of the narrator is understandable by the students of non-English speaking population.
- The video time was limited to 3-5 minutes to ensure that the class time is not engulfed in videos.
- More focus was given on real life videos rather than animated videos.
- Each textbook page has at least one video linked to an important keyword.

3.2 User Interface

Given below are some of the User Experience flows.

3.2.1 Registration (Figure 3) **:**

Users goes to www.vidhyasangam.com portal(Home Screen) and click on **"Register"** button. User then enters the details (Register Screen) and clicks on the "**Submit Request**" button. Upon receiving the user information an account is created for the user and a welcome email is sent along with the login details.

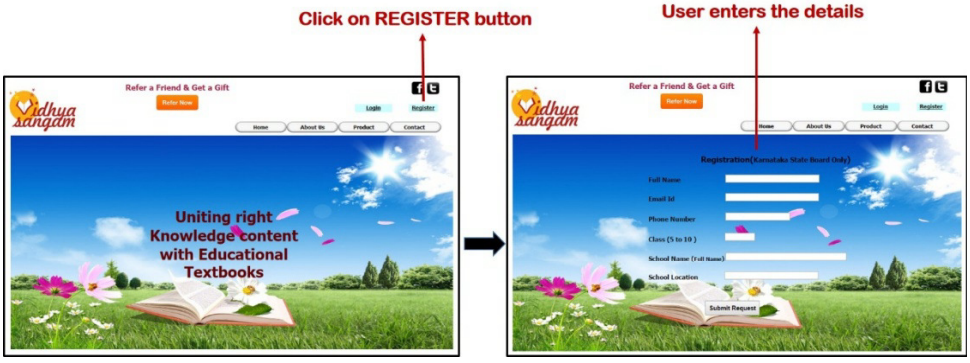

Figure 3. Registration Screens

3.2.2 User Login (Figure 4):

Users goes to www.vidhyasangam.com portal (Home Screen) and click on the Login button (Login Screen). Upon Login, user is presented by list of content organized by class and subjects (Content List Screen).

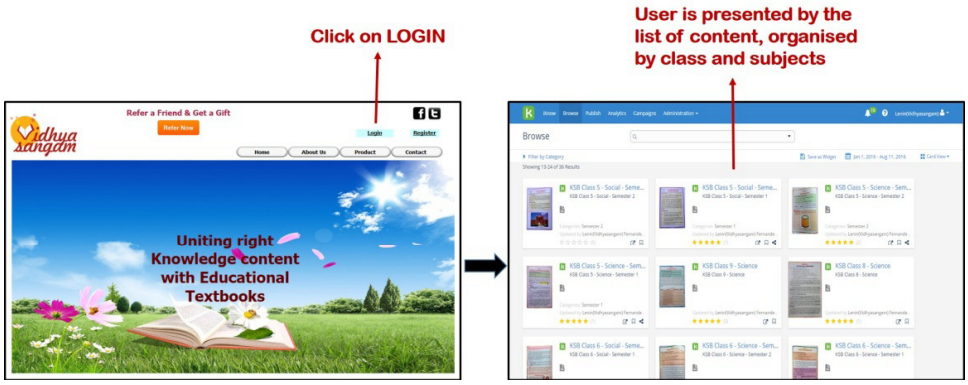

Figure 4. Login and Content Screens

3.2.3 User Clicks on a Subject (Figure 5):

The user can select the subject and the chapter of interest. Respective chapter shall be displayed containing the video links highlighted in pink color along with the video icon near it.

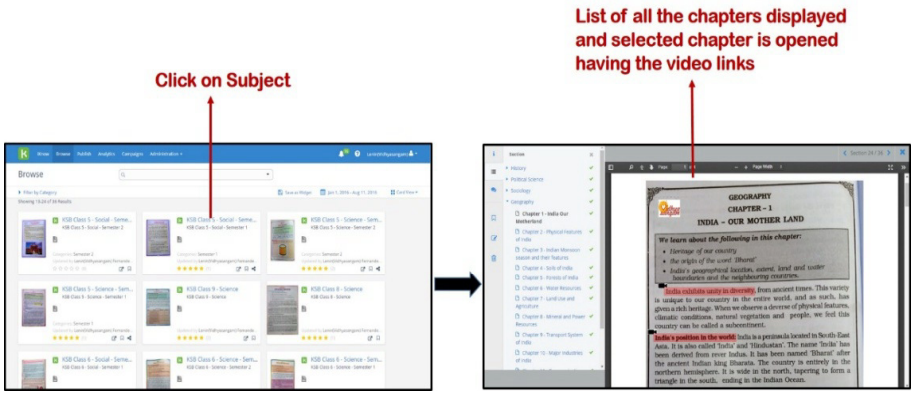

Figure 5. Subjects and Chapter display with Video links

3.2.4 User Clicks on a Video (Figure 6):

User clicks on the video link and the video starts playing in the full screen mode in a new browser tab. After finished watching the video the user can close the browser tab to return back to the chapter.

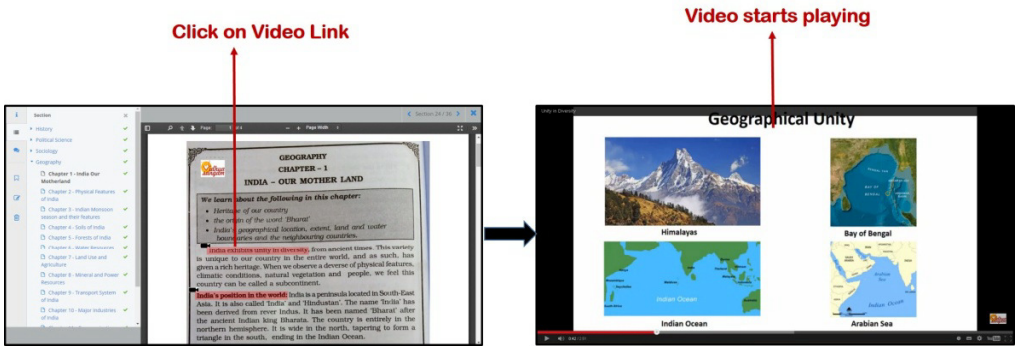

Figure 6. Click on the Video link and Play the video

4. Pilot Experiments

Once initial proto-type was available, there was pilot experiment done at two schools. Modern Public School at RT Nagar, Bangalore and St Johns School at Nagarbhavi, Bangalore. The feedback from both the schools was positive.

5. Customer adoption

After getting positive feedback during the pilot studies, VidhyaSangam launched the solution to the market place after having the content for Science and Social subjects for Class 5 to 10 - Karnataka State Syllabus. The response from the schools was overwhelming. Each of the school which was ready for technology adoption but had not started to use, quickly decided to use VidhyaSangam solution. Around 25 schools in Bangalore have registered and made it a regular practice to incorporate VidhyaSangam sessions in the classroom.

6. Conclusion

Usage of ICT technologies to augment the class room teaching is growing continuously. There is an urgent need of cost-effective solutions to meet this growing need. VidhyaSangam attempts to meet the need of some of the segments in this market place and has been successful. VidhyaSangam plans to expand its offering in other subjects for Karnataka State Curriculum (Maths, English etc) and also produce solutions to the CBSE Board Schools with NCERT textbook based content.

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