

Web Based School Education In India: Problems, Considerations, Approaches & Important Features Of Web-Based Learning Environment

Dr. B. V. Pawar

Department of Computer Science,
North Maharashtra University, Jalgaon(M.S.)
E-mail: bvpawar@usa.net

Abstract

Everywhere in India, Government provides primary education at no cost or negligible cost. We have many schools, enough teachers and facilities for students and teachers. But the great variation in the quality of education is found due to some factors like social background of students, parents, different standards of teaching and teachers training programs. All teachers cannot deliver the same message to all learners.

In the presence of great social diversity in India, it is difficult to change the social background of students, parents and their economical conditions. Therefore the only option left for us is to provide uniform or standardize teaching learning resources or methods. For high quality education throughout India there must be some nation wide network, which provides equal quality education to all students, including the student from the rural areas and villages. The solution to this is Web-Based Learning.

As we know that Internet is the ocean of knowledge, therefore it is better to open (introduce) this ocean to all students as early as possible in their life. This can be done by introducing or using Information Technology & related tools in school education or by using World Wide Web as *education delivery medium*. *The WWW* is used not only to disseminate information but it also provides a great opportunity to extend learning outside space and time boundaries. The Web Based Education / Learning has the potential to meet the perceived need for flexible pace, place & face. The web allows education to go to the learner rather than the learner to their education. As per as India is concerned there are many problems that one will face to use Information Technology in School Education like funds, infrastructure etc.

1.Introduction to Web Based Learning

As the Internet technology is introduced it makes a new revolution in information technology. The

wide use of Internet also affected the methods of education. It is a global network and gives the concept of global classroom where any number of students can interact with each other at any time. Goodbye classes, goodbye books and Goodbye teachers' is possible with the web-based education. The WWW gives attractive features to Web Based Education, which are:

- The ability to have multimedia documents
- The hypertext/hypermedia capability
- WWW network basis, allowing for distance learning.

In web based education we have two different types, asynchronous and synchronous learning:

- In asynchronous the educational module is to be installed from a particular web site and then you can unpack it offline on your machine. In this case there is no mutual interaction of student with teacher.

- In synchronous type there is synchronization among the students and teacher on-line. This synchronous Web based education provides the most emerging concept of E-learning.

E-learning is not a web delivered (to be installed/unpacked later) a common misunderstanding.

E-Learning is an interactive experience with access to on line tutors and can be done from any computers once you have your password.

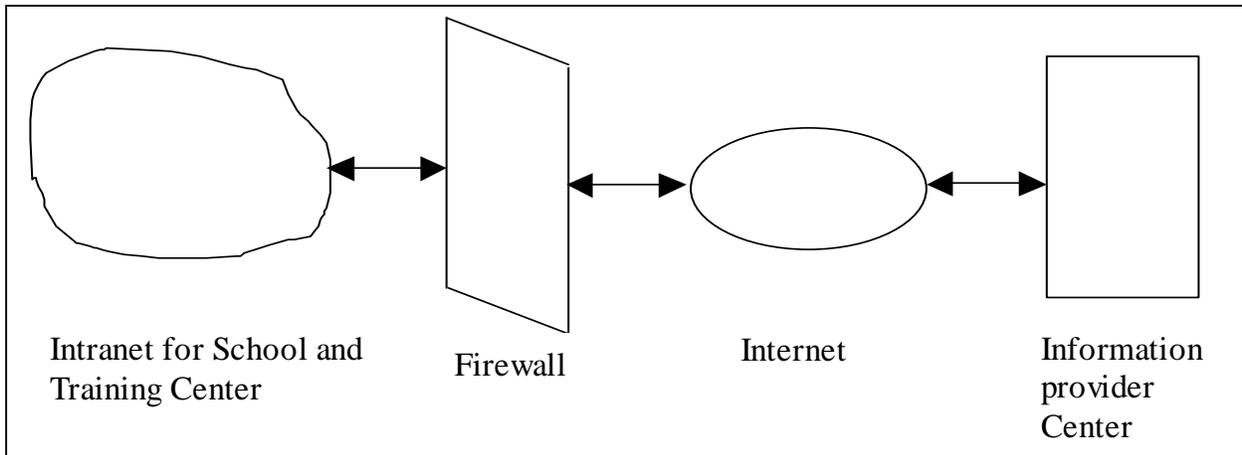
Access is through web browsers such as Internet explorer and Netscape Navigator. With E-Learning training is organized in the form of modules. The modules are approximately one-hour session that focuses on specific subject of training. Using E-Learning the training can be brought right to your desktop. This makes technical training more convenient. During the live E-Learning module, participants will have the ability to ask the instructor questions, get answers and interact with other students --- all on line.

In this paper, we have discussed problems, considerations & approaches to WBL in India along with important Features of Web-Based Learning Environment. In what follows, section second explains the scope for improvement in school education by using Information Technology, third section explains tools of Information Technology useful for school education, fourth section explains Web Based Education: Considerations and Approaches, fifth on problems to be faced while implementing IT in school education in Indian context sixth section

privacy of direct contact with the instructor and avoid the classroom fear of “exposing” ignorance.

c. Ease and speed of Update

WBL allows for efficient and quick updates to course material for frequently changing information. The changes are made on the server program. Everyone worldwide can instantly access the update.



explains important Features of Web-Based Learning Environment and finally last section gives conclusion.

2. Scope for improvement in school education by using IT: Web Based Education

If Information Technology is used in school education it provides:

a. Flexibility, Accessibility, And Convenience

With a very short period of training the student can access the learning material when their schedule allows. No separate distribution mechanism needed (WBL), can be accessed from any computer anywhere in the world, keeping delivery costs low, this leads to cost saving.

b. Enhanced Learning

Cognitively, active and context-based (“real world”) learning activities, the highly interactive nature of well designed online learning, flexibility to review course material at any time, all improve learners abilities to synthesize and retain information. Many learners also find it easier to ask questions via E-mail because they have the

d. Consistency of learning material

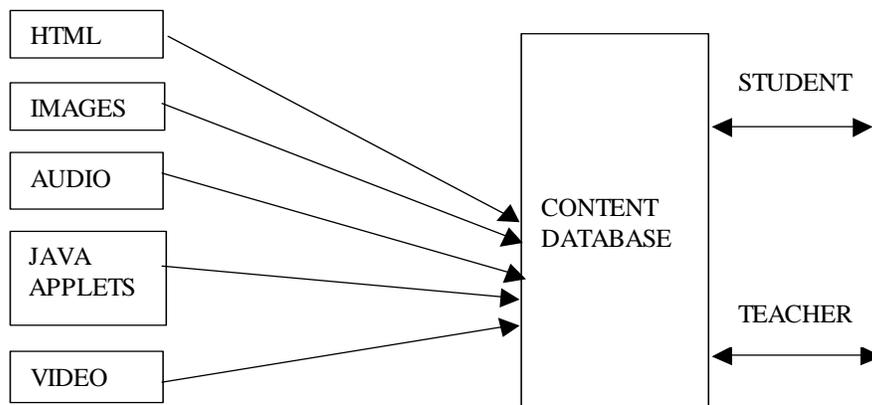
Each learner gets identical instructions to ensure the consistency and quality of the message by using WBL.

e. Cross Platform

WBL can be accessed by web browsing software on any platform Windows, Mac, UNIX etc. All these factors contribute to improve the quality of school education by overcoming factors like social background of students, parents, different standards of teaching and teachers training programs, all teachers cannot deliver the same message to all learners. Also by using WBL students can do their self –assessment & management has access to progress reports & assessment data of individual learner.

3. Tools of Information Technology useful for School Education

System Implementation Structure



In order to shift from traditional education to WBE we have to convert the existing school educational material to the Web. The important points to consider are bandwidth, design, usability, and the necessity of high quality media elements

To implement the WBE we propose the system implementation structure as shown in fig.1. The school classrooms, office and training centers are connected through Intranet. This Intranet is connected to the Internet by using network operating system. Firewall is introduced between Intranets and Internet in order to provide security.

System Description

In initial stage of school education the students are not expert in reading and writing. Subject understanding increases if they learn the things through visualization. With the help of multimedia or Rich Media, which includes, Audio, video, graphics and Java Applets have made WBE very effective. We propose Multimedia content database scheme as shown in fig.2.

In this database contents the data about educational centers, courses, tutors, students, examinations as well as some story books and games in the form of html pages, audio and video files, Images and Java Applets. Student and teachers can access this database for learning as well as for teaching.

In the primary stage students don't have good knowledge of English. Therefore the presentation should be available in their mother tongue for the better understanding, which is also helpful in improving their pronunciation. This is possible by developing Natural Language Interface to database.

One important device called, as "Tech Commander" is also useful for teachers to identify students potential by viewing any students computer display on his own monitor. If he finds something that everyone should see he could set everyone's monitor to display it.

1. Web Based Education: Considerations and Approaches:

a. Conversion of Existing Material

& consistency of material across the mediums.

b. Authoring for Multiple Delivery Environments

We have to provide consistency of interface & ease of authoring & design of an effective multi platform course.

c. Using the Web for student/Teacher Interaction

Web site can be used for posting of assignments, student work & marks, along with the ability to submit work on-line through the site, also JavaScript & JAVA applets to demonstrate course concepts interactively. This means that course delivery on the Web must be dynamic & truly interactive between the instructor & the students.

d. Faculty Support and Training

We have to provide centralized support & training resources for training the teachers initially.

2. Problems to be faced while implementing WBE in school education in Indian context:

Looking at how to use Information Technology in school education, its different tools, the system structure as defined & described above it is obvious that we will face some problems while implementing WBE in school education in India. The major problems we will be facing are:

a. Intensive Training to Schoolteachers

Schoolteachers are not introduced to the web based education. Therefore training should be given in order to create a learning environment that will itself train and spur students on the one hand to turn the learning experience into useful, practical and personal knowledge.

b. WBL awareness & Workshops

In rural area parents are not much knowing about WBL. So the demonstration, seminars & workshops needs be conducted for society in order to understand the importance of it.

c. Bandwidth Limitations

Limited bandwidth of Internet connection gives slower performance for sound, video and intensive graphics, causing long waits for downloads that can affect the ease of the learning process. Improved bandwidth will help the teacher to solve his problem.

d. Effect on Teachers

WBL will lead to reduction in manpower as per as teachers are concerned. This will lead to agitations by teacher's organization.

e. Effect on Students

Although the students will be benefited by WBL there will some section of students opposing this introduction of technology in education.

f. Infrastructure

WBE will primarily require free access to Web to all the learners and hence government of India will have to setup nation wide Fiber Optic Cable network.

g. Access

Every school will not have equal opportunity to information because of access issues. The schools with fewer budgets will always face this problem. This is the major problem as per as India is concerned, as there is big gap between poor & rich communities in India.

h. Download

The learning material that appears on web needs to be downloaded will require more time. The speed depends on the transmission methods & bandwidth, which is problem as per as India is concerned.

Important Features of Web-Based Learning Environment:

While designing Web-Based Learning sites the following important features should be kept in mind:

- **The Online Syllabus:**

An online syllabus provides the instructor with a way to change course material easily and as per the requirements in industry, and the student will have a complete and up-to-date picture of the course requirements. Hypertext links to sample relevant disciplinary web sites may be helpful in giving students (and also prospective students) a sense of the disciplinary context for the course.

- **Personal Home Pages:**

Personal home pages can be used to foster the sense that the class is not just a collection of isolated individuals but a community of learners who can profit from interacting with one another. Home pages encourage students to learn about each other so as to encourage contact and mutual interests. This helps the learners to create a group with common interest.

- **Interactivity:**

Adding discussion forums and chat sessions to your online course is a common way to add an interactive component to a web-based course. There are many implementations of bulletin board and chat session software to choose from. A second method of interactivity is, of course, e-mail. It's a good practice to have an online list of the e-mail addresses of all registered students, the professor, and teaching assistants. This is possible with an e-mail subscription mechanism included in your Online Syllabus.

- **Assignments:**

The web page listings of homework assignments, upcoming events and exams can be more interactive than the familiar print counterparts. If some homework assignments, for example, are based on online materials, they can be directly linked to the class schedule. This helps the students to plan the preparations for the examination in systematic way.

- **Announcements:**

To be effective, announcements need to be read; for that to happen, students need to know when a new announcement has been posted. Alert sounds or perhaps a blinking link added to a page can let students know of new announcements, or perhaps, even a mass e-mail to all students in the course. For a home page, or a long life syllabus, various software tools can be

used for the subscribers announcement about page changes. All these techniques will attract the learner's attention towards announcements.

- **Testing:**

Online drill or practice testing can be used to reinforce material, even if the results are not used as part of a grade. Reading comprehension questions, for example, in short answer or multiple choice formats can provide students with an assessment of their level of understanding of text. This facilitates the students to measure his level of understanding and through continuous assessment he can try to improve his performance.

- **Course Management:**

Software should be available to add or delete students from the course, assign user Ids and passwords, create or edit home pages, and manage any open discussion groups. This helps to keep up to date records of students admitted for various courses.

- **Content:**

Perhaps the most difficult part of developing a web-based course is creating the online contents. You can begin by transferring your basic lecture materials to the web and integrating media such as sound, images, and video. Remember, to experiment with incorporating some of the new web-based learning paradigms described above. And finally, come back and rebuild the lecture building its graph structure and using more html facilities.

Other Features of a Web-Based Learning Environment:

- Managing **cognitive load** -- the amount of information people can process -- is essential to effective teaching or training. Bombarding learners with too much information at once, called cognitive overload, is one of the chief obstacles to learning. This indicates that we should provide only required information in order to avoid cognitive overload.

- Dividing each tutorial lesson into **segments** (Classroom, Quiz, Lab, etc.) and then further subdividing these segments into a manageable number of chunks allows users to digest new concepts and skills in a manner that prevents overload.

- **Web-based tutorial:** Users will also enjoy a great deal of flexibility in managing their cognitive load, selecting instructional tasks from a menu of lessons, depending upon the amount and kinds of skills they bring with them, and once engaged in a lesson, selecting which portions of that particular lesson they wish to complete. This allows the students to learn the topics in proper sequence and according to his ability of understanding.

- Because the limited capacity of working memory is rapidly overwhelmed by large amounts of new information, frequent opportunities to practice are important. Rehearsal encodes or moves information into long-term memory. The practice assignments can be presented with practice opportunities throughout the classroom portion of the lesson and is also encouraged to complete the practice portion of each lesson. This allows the student to find out how much he has understood at the end of learning a particular module.

- Finally, online testing is used to reinforce material. **Elaborative rehearsal** involves presenting questions, which allow the user to apply knowledge in an appropriate context, thus encoding it into permanent memory.

- Quiz questions are designed to provide an authentic assessment of user skill levels by calling on the user to apply the appropriate techniques and practices from the lesson.

7. Conclusion:

With introduction of Web Based Education at school level our children and youngsters will grow as "Computer kids". Their exposure will get increased due to which the Knowledge level will get definitely improved. Use of Internet for education has a potential to change many aspects of our lives. In conclusion we can say that WBE is Platform independent, convenient in access, cost saving, easily updated contents and with emerging technologies it can be made more effective.

Web-Based Learning adds human support through on-line tutor, thereby extending the scope of what can be effectively taught into many new subject areas. In addition more supporting material can be made available through web site links to other documents and systems. With all these important features incorporated in Web-

Based Learning system it will enhance the quality of education in our country at all levels i.e. Primary, Secondary and Higher Education.

References

- [1] Linda Labbo, "Towards a Vision of the Future Role of Technology in Literacy Education"
- [2] Randy Bass and Roy Rosenzweig, "Rewiring The History And Social Studies Classrooms: Needs, Frameworks, Dangers And Proposals"
- [3] Grant Sherson, "Developing a Web Learning Environment", Technology for flexible Learning Conference, 1998.
- [4] Joan Assey, " The Future of Technology in K-12 Arts Education"

[5] <http://multimedia.marshall.edu/>

- [6] Russell E. Brayley, "Worldwide Teaching on the WWW: Issues in internationalization of on-line course content and structure", Indiana University.
- [7] Steve McCarty, "Voluntaristic on line education and the future with Japan", Teaching in the community colleges online Conference, 1998, A Keynote Address.
- [8] Angel Garcia, J.A. Jaen, Requel Martinez & J.A.Criado, "WebTutor, a Self-Evaluation and Student Tracking System", NAWEB 98.
- [9] Steve Taylor, "A Classroom with a View".
- [10] M.Murphy, "Development of the Course Vault for online Educational Content Development & Delivery.
- [11] Thoma J.C.Smyth, "Using the WWW for students assessment".