

Web Based Learning

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Abstract: - This paper addresses the scenario of what educators do to ensure that the potential of the web is used effectively to support both their own learning and that of their students? As the advantages of web-based learning (WBL) in higher education include overcoming barriers of distance and time, economies of scale, and novel instructional methods, while disadvantages include social isolation, up-front costs, and technical problems. The web is increasingly used both as a learning tool to support formal programmes and as a means of delivering online learning programmes.

Index Terms—Higher education, Web based Learning, Web Based Teaching, Virtual Learning Environment (VLE)

I. INTRODUCTION

Higher Education sector has witnessed a tremendous increase in its institutional capacity in the years since Independence. The number of Universities/University-level institutions has increased 18 times from 27 in 1950 to 504 in 2009. The sector boasts of 42 Central universities, 243 State universities, 53 State Private universities, 130 Deemed universities, 33 Institutions of National Importance (established under Acts of Parliament) and five Institutions (established under various State legislations). The number of colleges has also registered manifold increase with just 578 in 1950 growing to be more than 30,000 in 2011.

Higher Education is the shared responsibility of both the Centre and the States. The coordination and determination of standards in institutions is the constitutional obligation of the Central Government.

The Central Government provides grants to UGC and establishes Central Universities in the country. The Central Government is also responsible for declaring educational institutions as “deemed-to-be University” on the recommendation of the UGC.

At present, the main constituents of University/University-level Institutions are: - Central Universities, State Universities, Deemed-to-be Universities and University-level institutions

The rate at which the Information Technology (IT) is growing today is evident from the fact that it has invaded almost every part of our life. Technological progress can be harnessed for augmenting both expansion as well as quality

of education. Present endeavour in this direction has been mainly towards providing the infrastructure and network to the institutions of higher education. The digital resource development and utilizing the digital resource into quality certified programmes and courses need to be fully exploited by the universities.

The Government of India is keen to use the technological resources in helping its mission to make Higher Education accessible to all deserving students. In this regard, it has launched its National Mission on Education through Information and Communication Technology (NMEICT), which is described separately.

Another significant step in this direction is the National Video Server of the National Programme on Technology Enhanced Learning (NPTEL), which was launched at IIT Madras in February 2011 by Shri Kapil Sibal, the Hon’ble Minister for Human Resource Development. The video server is connected to 1 Gbps link of the National Knowledge Network (NKN) and also to 155 Mbps link to the Colleges’ Virtual Private Network (VPN). Both the networks come under the National Mission on Education through Information & Communication Technology (NMEICT) and the video server would make the entire NPTEL content available to students across Universities and Colleges online. The NMEICT is a mission to provide connectivity, valuable content and low cost computing devices to all the Institutions of higher learning in the country. [10]

Web accessibility is one of the most critical issues facing higher education. Although new web technologies and online media have been a boon for distance and online teaching, students and staff with disabilities have become increasingly disadvantaged. The access gap is exacerbated by the skyrocketing growth of the disabled population due to medical and technological advancements. While the need for equal access in education is at an all-time high, there are no easy solutions and questions abound. How can universities align departments to make accessibility a priority? Where should the budget come from? What is the best approach for allocating resources and responsibilities?

II. WEB-BASED TEACHING

"Web teaching is all about making connections: connecting your students to one another and to resources around the world; combining different materials – music, motion, text, narration – into one presentation; collecting related information from multiple sources... enable students to make their own connections by offering materials for download and use in their scholarship or by having them construct web documents as part of their coursework. And this process of making meaningful connections is at the core of all learning." [7].

Web-based teaching materials are a subset of computer-based training (CBT) or electronic learning (eLearning) used to leverage the World Wide Web for the delivery to instructional materials.

Several teachers and institutions provide access to Web-based teaching materials through links on Web pages. An example is how Columbia Education Center provides access to supplemental Web-based Teaching Materials[2]. University professors and departments often provide similar resource pages to augment learning opportunities for their students. These resources are especially helpful when they provide an extension beyond what is covered in the classroom (i.e. materials on specific disciplines for Education majors who may be have deep knowledge in a specific discipline).

Several companies and cooperative efforts have emerged to provide online access to Web-based teaching materials. These entities range from companies producing their own edutainment media to sites provided to aggregate links to other existing content. While the missions of these organizations may differ, they all focus on furthering the World Wide Web as the delivery medium for teaching materials.

Web-based teaching materials emerged as elements on personal Web sites with the proliferation and adoption of the Internet in the early to mid-90s. Beyond personal publishing, Web-based teaching materials were often published online as samples and supplemental materials by commercial entities experimenting with the World Wide Web [3].

Sites devoted to specific topics began aggregating links to these resources in efforts to capture educator audiences in the late 90s. These concepts were then extended to the Learning Management System (LMS) and Learning Content Management System (LCMS) as a way for instructors to organize and provide access to learning materials already available online. These systems also contain authoring tools that allow pieces of entire courses (including Web-based teaching materials) to be published online. [4]

III. WEB BASED LEARNING

Web based learning is often called online learning or e-learning because it includes online course content. Discussion forums via email, videoconferencing, and live lectures (video streaming) are all possible through the web. Web based courses may also provide static pages such as printed course materials.

One of the values of using the web to access course materials is that web pages may contain hyperlinks to other parts of the web, thus enabling access to a vast amount of web based information.

A “virtual” learning environment (VLE) or managed learning environment (MLE) is an all in one teaching and learning software package. A VLE typically combines functions such as discussion boards, chat rooms, online assessment, tracking of students' use of the web, and course administration. VLEs act as any other learning environment in that they distribute information to learners. VLEs can, for example, enable learners to collaborate on projects and share information. However, the focus of web based courses must always be on the learner—technology is not the issue, nor necessarily the answer. [5]

“Newer technologies such as computers and video conferencing are not necessarily better (or worse) for teaching or learning than older technologies . . . they are just different . . . The choice of technology should be driven by the needs of the learners and the context in which we are working, not by its novelty.”[6]

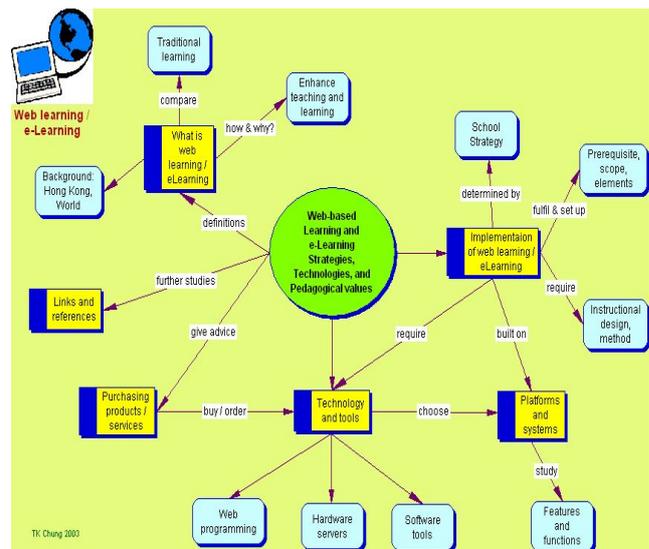


Figure 1:- Web-based Teaching and e-Learning: Strategies, Technologies, and Pedagogical values [7]

IV. MODELS OF WEB BASED LEARNING

Several approaches can be used to develop and deliver web based learning. These can be viewed as a continuum. At one end is “pure” distance learning (in which course material, assessment, and support is all delivered online, with no face to face contact between students and teachers). At the other end is an organizational intranet, which replicates printed course materials online to support what is essentially a traditional face to face course. However, websites that are just repositories of knowledge, without links to learning, communication, and assessment activities, are not learner centered and cannot be considered true web based learning courses.

Features of a typical web based course

- Course information, notice board, timetable
- Curriculum map
- Teaching materials such as slides, handouts, articles
- Communication via email and discussion boards
- Formative and summative assessments
- Student management tools (records, statistics, student tracking)
- Links to useful internal and external websites—for example, library, online databases, and journals

The first step in designing a web based course is to identify the learners' needs and whether the learners are to be considered as part of a group or as individual learners. The web can be a useful tool for bringing isolated learners together in “virtual” groups—for example, through a discussion forum. There are several online resources on how to design web based learning programmes

Advantages

- Ability to link resources in many different formats
- Can be an efficient way of delivering course materials
- Resources can be made available from any location and at any time
- Potential for widening access—for example, to part time, mature, or work based students
- Can encourage more independent and active learning
- Can provide a useful source of supplementary materials to conventional programmes

Disadvantages

- Access to appropriate computer equipment can be a problem for students
- Learners find it frustrating if they cannot access graphics, images, and video clips because of poor equipment
- The necessary infrastructure must be available and affordable
- Information can vary in quality and accuracy, so guidance and signposting is needed
- Students can feel isolated

QUESTIONS TO ASK BEFORE STARTING A WEB BASED LEARNING PROJECT

- ✓ What is the educational purpose of the web based learning project?
- ✓ What added value will online learning bring to the course or to the students?
- ✓ What resources and expertise on web based learning exist in the institution?
- ✓ Are colleagues and the institution aware of the planned course? (You need to avoid duplication of effort and be sure that the institution's computer system can support the course)
- ✓ Has the project taken account of existing teaching resources and ongoing maintenance costs after initial development?
- ✓ Have you allowed enough time to develop or redevelop materials?
- ✓ Have the particular design and student support requirements of web based learning courses been taken into account?

V. INCORPORATING WEB BASED LEARNING INTO CONVENTIONAL PROGRAMMES

Web based learning in an institution is often integrated with conventional, face to face teaching. This is normally done via an intranet, which is usually “password protected” and accessible only to registered users. Thus it is possible to protect the intellectual property of online material and to support confidential exchange of communication between students.

Medicine has many examples of online learning, in both the basic sciences and clinical teaching. As students are usually in large groups for basic science teaching, web based learning can be used to provide learning materials to complement conventional programmes and to enable self assessment—for example, access to anatomical sites and image banks for the teaching of pathology courses. Web based learning can be useful to support clinical teaching when learners are geographically dispersed—for example, to learn clinical skills through video demonstrations. From the figure 2- ,it demonstrate the difference between traditional learning and Web based learning

Traditional Learning	Web / E-Learning (using IT)
<ul style="list-style-type: none"> • Teacher-centered instruction • Single-sense stimulation • Single-path progression • Single media • Isolated work • Information delivery • Passive learning • Factual, knowledge-based learning • Isolated, artificial context 	<ul style="list-style-type: none"> • Student-centered instruction • Multisensory stimulation • Multipath progression • Multimedia • Collaborative work • Information exchange • Active / exploratory / inquiry-based learning • Critical thinking and informed decision-making • Authentic, real-world context

Figure 2:- Difference between traditional learning and Web based learning, [8]

VI. FOR AND AGAINST WEB BASED LEARNING

When designing web based programmes (as with any learning programme), the learners' needs and experience must be taken into account. Appropriate technology and reasonable computer skills are needed to get the best out of web based or online learning. Programmes and web pages can be designed to accommodate different technical specifications and versions of software. It is frustrating for learners, however, if they are trying to work on the internet with slow access or cannot download images and videos they need. On the other hand, web based programmes may, for example, encourage more independent and active learning and are often an efficient means of delivering course materials. Web based programmes can enhance teaching and learning by the integration of Information distribution, communication, interactivity, Geographical Independence, Temporal Independence [9]

VII. CONCLUSION

The rapid expansion of the Internet and increasing software capabilities are influencing the dynamics of teaching and learning on many different levels. Web-based learning tools are constantly being re-designed by the developers to improve their effectiveness. Both WebCT and Blackboard have newer versions of their course tools than the ones used for our study. As the results of this study have illustrated, the usefulness and effectiveness of the tool is contextual, depending on many different factors including the design of the tool itself. Feedback from 'real' users, such as students, is important to provide input into further tool improvement. Unfortunately, users of these tools in educational institutions are rarely included in this process. [1]

Web based learning offers huge opportunities for learning and access to a vast amount of knowledge and information. The role of teachers is to ensure that the learning environment provided takes account of learners' needs and ensures that they are effectively prepared and supported. Online learning has advantages, but web based learning should not always be viewed as the method of choice because barriers (such as inadequate equipment) can easily detract from student learning. The technology must therefore be applied appropriately and not used simply because it is available and new or because students and teachers have particular expectations of this means of course delivery. [1]

The following suggestions to universities considering deploying web-based learning tools: Provide adequate training for instructors and students, Carefully consider the needs (of instructors, students, administrators) before selecting a technology , Provide integration, standardization, flexibility and accessibility in tool/program choices ,Ensure universality in access and usability across campus and universities for every student

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