Web Assisted Learning Initiatives: Research Study of Using Web-Based Teaching Materials in Various Courses

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***Abstract*– The World Wide Web is acknowledged as a rich resource of knowledge easily knocked by any person who has the skills necessary to login to the internet. It facilitates potent possibilities of retrieving information about any topic of interest. This paper describes the experiences of the authors and other faculty at University of Karachi and DA College of Business that encourages sharing of web-assisted teaching and learning materials. These experiences indicate that such materials can increase productivity of both the processes i.e., teaching as well as learning.**

***Keywords*–** Web-based Teaching, Learning, Courses and Sharing

I. INTRODUCTION

Electronic learning or simply e-learning is used for all types of technology assisted virtual learning, in this type of learning technology is used to support the process of learning. Sometimes, the medium of instruction is through computer and information technology, particularly involving digital communication technologies. E-learning has been defined as "pedagogy empowered by digital technology". In some cases, no physical communication takes place. E-learning is applied in variety of ways in different parts of the world and different situations. In business organizations, it refers to the approach that uses the company's communication network to provide training programs to employees of the particular organization. In the modern way, it is defined as a planned teaching and learning practice that uses a broad range of communication technologies, principally Internet or computer based storage technologies e.g. CDs, DVDs etc, to reach to the learners at remote locations. Recently in most institutions of higher learning, e-learning is used to identify a specific style to attend a subject/course or programs of study where the students hardly ever, attend physical or face-to-face interaction for on campus access to educational facilities, because most of the time the are connected through internet.

Web assisted teaching and learning resources are a breakup of computer based training programs or the Internet for the delivery to instructional resources.

It is a common practice nowadays to provide the students with the direct access to Web assisted teaching and learning materials through links on faculty Web pages. An example is how few faculty members of Department of Economics, University of Karachi and DA College of Business are providing access to Web assisted teaching and learning resources. Various University professors and Institutions provide comparable resource pages to supplement online learning opportunities for their students. This online material is helpful when they provide a detail about what is covered in the classroom which also includes the materials on specific disciplines or subject under study.

It has been observed that students, sometimes, feel difficulty in getting the teaching learning material used by the faculty member in the classroom. From time to time they forget to copy the lecture notes, or if they are absent from any particular class they eventually miss the study material for that particular chapter. This situation ultimately disturb them in their examination and they waist lot of time in collecting the lecture notes from their friends, and sometimes they are successful in their attempt but sometimes not.

Instructors are feeling increasing anxiety to use information technology related products, but they commonly face several barriers when attempting to use technological teaching methods. Institutions of higher education must tactically develop information technology plans that help overcome these barriers, addressing the needs of varied academic programs and multiple levels of comfort with technology.

Education is a practice, and as such can be continually improved. Improving education engages inner and outer resources and pressures. Just one or more of these issues can cause a student to drop out. If this occurs, then we as instructors have unsuccessful to help individuals attain their full potential. However, if we get involved in some way by creating wisdom of society, then we are empowering students to discover, survive, and serve.

Barriers can make technology use frustrating for the technologically insightful, let alone the many teachers who may be somewhat technology resistant. The purpose of integrating and implementing information technology as a foundation skill area within all syllabi is to help students on their drive toward information technology education through the use, management, and understanding of information Technology. Curriculum developers, teachers, and administrators play an important role in working towards accomplishment of this objective. Strategies for the integration and implementation of IT, developed with a consideration of the use and chronological impact of IT, will help facilitate positive change in the classroom and lead to IT-skilled students.

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II. REVIEW OF THE LITERATURE

Chen (1995) told that Internet is a key source for the achievement of the knowledge on a given subject area, and it is known for some new characteristic to public opinion as an ongoing source of knowledge. The Internet society particularly offers an expert system[**] with a range and scale beyond that yet imaginable with computer assisted systems alone. It is significant to replicate and hold up the procedures by which knowledge is obtained through the resources available over the Internet. In an attempt to expand new helping tools is one asks "what is the starting point for the person seeking information, the existing information that is the basis for their search." A helping tool is one that takes that available information and applies it to present detailed information that is probably seems to be pertinent. Such type of the information could have relevant concepts, text, existing documents, people, sites, list servers, news groups, and alike. The system which is supporting may offer links to further applications of all of these types of resources based on content, categorization or linguistic or logical conclusion. The result of the search may be access to a document but it may also be email to an individual, a group of people or a contact list. His paper has given us a model of services and knowledge processes on the Internet based learning, which further describes a variety of support tool, and present them as a component of a unified model.

Zhuge (2002) The Internet and World Wide Web are milestones in the history of information sharing. Scientists are ever more relying on them to support their research.

They can correspond with each other using email and net meetings and post their experiment data and research results on their personal websites. They can also find scientific reports and papers from familiar online digital libraries or new ones they find out through search engines such as Google[*]. But huge growth of Web page's and built-in characteristics prevents people from effectively and efficiently sharing information. Huge effort to resolve this issue has achieved partial success. As web pages can't imitate machine-understandable semantics, the internet has difficulty supporting intelligent services[**]. Knowledge is the origin of realizing intelligent services.

Williams and Nicholas (2001) found that in many countries, well known Internet features like seamlessness, currency, global reach, egalitarianism, comprehensiveness, and interactivity were questionable, either for reasons of limited technical skills, or restricted connectivity due to poor infrastructure. They also pointed to the problems of information overload as a result of access to infinite quantities of information, limiting people's ability to process it efficiently and effectively.

Peter Cukor & Lee W. McKnight (2001) argue that ICTs[***] are playing a significant role in economic, political and economic development. The Internet in particular, they argue, is 'well suited to facilitate and support a new and increasingly more popular paradigm in development, the so-called Knowledge Networks', which brings people from both the North and the South into new learning relationships and permits participation by people from developing countries in the global knowledge economy on the basis of their education alone and despite the fact they do not live in an industrialized country with access to the latest technology. They stated four kinds of knowledge networks: informal (casual, ad hoc interactions), information access (university or government libraries), open (research-based networks with a well-defined structure and governance) and development networks, which focus on a well defined theme around which various projects converge. These networks exist not only to create new knowledge but to accelerate its application. Development networks are highly structured, have strong governance and participation is by invitation based on merit.

Evers (2002) stated that knowledge has been widely recognized by economists as the most important factor of production in a "new economy". The production and utilization of knowledge is therefore essential for development. Some countries, Malaysia among others, have embarked on an ambitious plan to use knowledge as a base for economic development, by-passing earlier stages of industrialization. Some commentators have, in contrast, asserted "that it is doubtful that the knowledge revolution will let developing countries leapfrog to higher levels of development" as "the knowledge economy will actually expand the gap between rich and poor". He also discussed this controversy by showing that the development of a knowledge society and an epistemic culture is a precondition for knowledge-based economic growth.

Arthur (1996) explained that we are living in extraordinary times that are under change and conversion of the society and its underlying economic foundation. The nature of production, trade, employment and work in the upcoming years will be very diverse from the requirements of the currant times.

Land is the key resource in agriculture based economy. Natural resources, such as coal, iron ore and labor are the main resources of the industrial economy. Knowledge is the key resource in the knowledge based economy.

It is a classical concept that knowledge plays a significant role in the economy. All economies, however uncomplicated, are depends upon the knowledge about how, for example, to farm, to mine and to build; and this type of knowledge application has been growing since the revolution of the industrial era. But according to researcher the extent of integration of knowledge and information into the economic activities is now so vast that it the greater portion of the economy and altering the basis of competition in any industry.

Furuholt & Kristiansen (2007) examined the modern terminology of the digital divide[*] that is the gaps between those with regular, successful application of digital technologies, in particular the World Wide Web, and those without the Internet. The universal digital divide is an expression which used repeatedly to explain the gap between more and less developed countries, while at the countrywide

[**] A computer system based on artificial intelligence
[*] World's most popular search engine www.google.com
[**] Artificial intelligence
[***] Information and Communication Technologies

[*]The term digital divide refers to the gap between people with effective access to digital and information technology and those with very limited or no access at all

level; there is often an urban and rural divide. In underdeveloped regions of the world, most Internet users don't have private internet access therefore they gain access through public access points like Internet cafés. In this paper, researcher has tried to focus at the digital divide within Tanzania. This research study is based on a survey method which was conducted among the users of Internet café in rural, urban and middle regions of Tanzania; researcher also come across the fact that the divide is primarily a question of finding venues with the various technological medium to access the Internet. Users of the Internet and usage at the different locations are surprisingly consistent, with, however, a few noteworthy disparities.

Bolt and Crawford (2000) have shown that Internet use, and educational technologies in general, are only as good as the teachers who use them. While the Internet makes it possible to access vast amounts of information, there is a danger of neglecting the traditional values inherent in the academic model like sound grounding in a field's theoretical and philosophical position.

Ronald (2004) evaluates the credibility of information on the internet. As school pupils and undergraduate students surf on the internet to find information, these pupils and students also need to evaluate the credibility of the information that they find. Because my own professional experience is in scientific research, electrical engineering and law, the discussion here focuses on these three areas. The researchers urge that readers develop their own assessment of credibility of available sources of information, as a substitute of blindly depending upon peer reviews.

Ronald reviewed the three traditional methods for evaluation of credibility:

(1) peer review, (2) credentials of the author, and (3) writing style. These three traditional methods are easy for the reader, but are not sophisticated and may give misleading results. Credibility may be controversial. It is important to recognize that there may be no unique right answer for credibility of some information at the cutting-edge of new knowledge, where experts who are familiar with the detailed subject matter may disagree about the credibility, plausibility, or significance of new work. After tens of years, a consensus will emerge about the credibility of past work. But current work at the frontiers of knowledge may be controversial and disputed.

Wittmann (2001) addressed the credibility issue over the internet. Information is no more a scarce resource but an abundant one. In the open market of the www (world wide web) "every/wo/man" has the problem to reach the information she/he really needs, as well as to judge whether it is correct or not. Studies say that half of the www-pages are outdated, biased or just wrong.

III. RESEARCH METHODOLOGY

Survey research methods have been applied on the non probability sample drawn from the population of the students from University of Karachi and Defense Authority College of Business. In addition to that, Web based statistics and observational research methods have been used to find some empirical findings about the increasing use of the web assisted learning at the institutions under study. Web based statistics are collected by tracking the online users of a website, with the help of intelligent agent (software).

A. Benefits of Web Based Learning

Benefits of web based learning include access to a vast range of learning resources, propinquity to information, learning anytime, learning anywhere, mutual learning, multimedia technique of providing education, reliable and current information, access to online libraries, teaching of different courses has been made appealing, storage of educational data, distance learning, access to the various sources of information, numerous communication channels including e-mail, chat, forum, blogs, access to open courseware, and improved accesses to students with certain disabilities.

Another benefit of developing web based teaching and learning material is reusability of the data. The author's experiences with reuse have been positive. Some times it is required to add supplementary or more up-to-date content, which he then incorporated into his copies of the materials.

Developing material for a new course, using newer technologies, requires a large amount of work under any circumstances. It is even more work to simultaneously create PowerPoint presentations, code samples and other materials, and then create and maintain a web site to house these materials.

The author noticed in his classes, where he was using web based teaching and learning materials that some students were printing out the PowerPoint slides and HTML documents, placed on their course resource website. This indicates that they recognized value in this web based learning material.

B. Web Based Learning Initiatives Analysis by the Authors

Authors have developed web sites, which are an attempt to help their students in their studies by providing them course teaching plans and lecture notes online. Technological advances in computing and information processing are changing the way students learn and faculty teach. Ten years ago students learned by reading their textbooks, listening to lectures, taking part in discussions, and writing papers. Professors still use these fundamental tools in classes today, but they have added computer-based technologies including emails, WebPages, on-line discussion forums, multimedia programs, quiz-giving programs, and the similar sort of web resources to their teaching toolbox. Authors have found their website very helpful and problem solving for the students of Department of Economics, University of Karachi and DA College of Business. You can also visit Author's website and see the 21st century learning innovations by browsing the following web addresses; *www.aatiff.itgo.com* & *www.rizwana.7p.com.*

Author's website also contain such tools, some features of this website are discussed below;

1) Home Page

Home page is a starting page or page meant to organize links or information for the students and visitors when a web browser starts. Start page generally consist of information

about the website and contains the links of other web pages like learning resources, discussion forum, electronic notes, funny answers etc.

2) Learning Resources

The purpose of this web page is to provide free on-line, stimulating, interactive, teacher written learning resources to support the curriculum for students of Defense Authority College of Business. All the syllabus guidelines and lecture notes are available on this link. Whether you are a teacher, a student or even a parent looking for ways to support your child's learning at home, I am sure you will find something of interest here.

3) Discussion Forum

The author's website also contains an online discussion site. It is the modern equivalent of a traditional bulletin board, and a technological evolution of the dialup bulletin board system. From a technological standpoint, forums or boards are web applications managing user-generated content.

Faculty and students participating in an Internet forum may cultivate social bonds and interest groups for a topic may form from the discussions. Author has observed some very good comments and answers of the questions raised in the online forum by some very passive students.

4) Electronic Notes

This web link contains various contents of the syllabus, which are not properly described in the course book. Author has developed these notes by consulting various books, so that students can get the complex learning material instantly from this web page instead of wandering in various books.

5) Funny Answers

This webpage contain funny answers from from the answer scripts of the courses taught by author. Usually, faculty members mark 100s of answer scripts every year, sometimes this is pretty boring but it can be enlivened by funny errors and other daft ideas. Here the author has presented his collection of Funny examination answers on his website. This activity has stopped the students to repeat their mistakes. So the author has decided to make this post an ongoing collection of funny student stuff.

6) Past Papers

This web page has a collection of past university examination papers. Previously it was a difficult job to find past papers of university. But now students start preparing them for university examination from day one and as per their convenience they can download these papers any where on any personal computer.

Author has found his website very helpful and problem solving for the students of Defense Authority College of Business. Now the students have a single gateway for accessing all the teaching and learning material for the courses taught by the first author.

IV. RESULTS AND ANALYSIS

Some statistics, including the utility and usage of website, are given in Table I:

The researchers have developed two websites for sharing the teaching learning material online with their students. The websites were developed during the fall 2007 and spring 2008 sessions. One website provide assistance to students for the subjects IT in Business, Computer Application, Business Research, E-Commerce and Information Systems, while the second provides the support for the subjects like Microeconomics, Macroeconomics, Money & Banking, Economy of Pakistan, and Financial Management. Eight to ten pages were uploaded to provide assistance to the students in their respective subjects. Around one hundred files were uploaded on the web server, which were accessible to students 24/7 from any computer which has access to the internet in any part of the world. Around six thousand visitors were recorded by the web server in a year time. Students downloaded 1300 file from one website and 1150 files from the other website in a year time which shows the interest and approach of the students towards the web assisted study material.

Fig. I states the number of visits on *(www.aatiff.itgo.com)* a faculty resource pages developed to provide web based assistance to the students in information technology related subjects. The trend line in the above mentioned figure shows a constant increase in number of visitors month wise. Around three thousand visits were recorded by the web statistics intelligent agent, who visited the particular website in a year time.

Table I: Utility and usage of course resource website

Web Address (URL)	**www.aatiff.itgo.com**	**www.rizwana.7p.com**
Activation	Spring 2008 Session	Fall 2007 Session
Courses Supported	IT in Business Computer Application Business Research E-Commerce Information Systems	Microeconomics Macroeconomics Money & Banking Economy of Pakistan Financial Management
Web-Pages uploaded	10	08
Files uploaded	55	45
Visitors in a year	3000	2800
Downloads in a year	1300	1150

Figure I: Web statistics for Information Technology courses

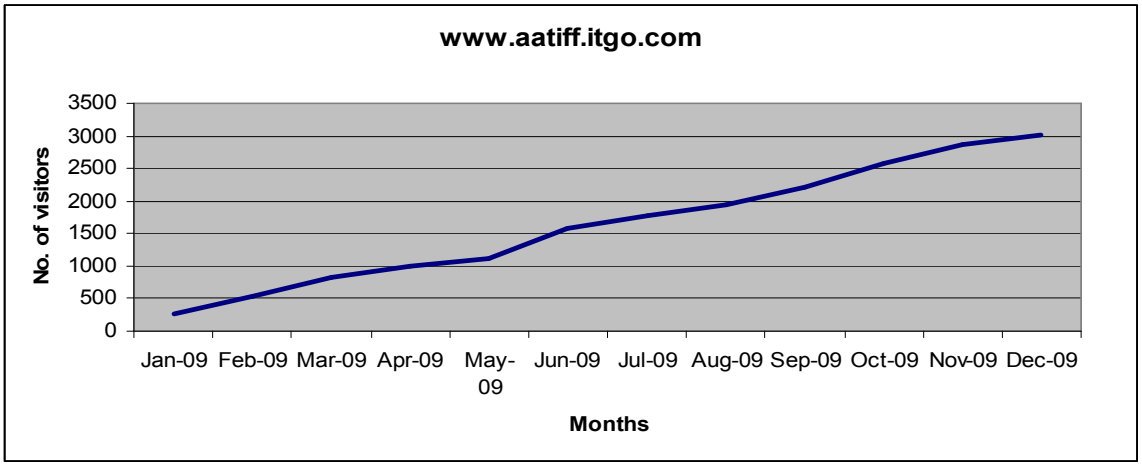

Figure II: Web statistics for Economics courses

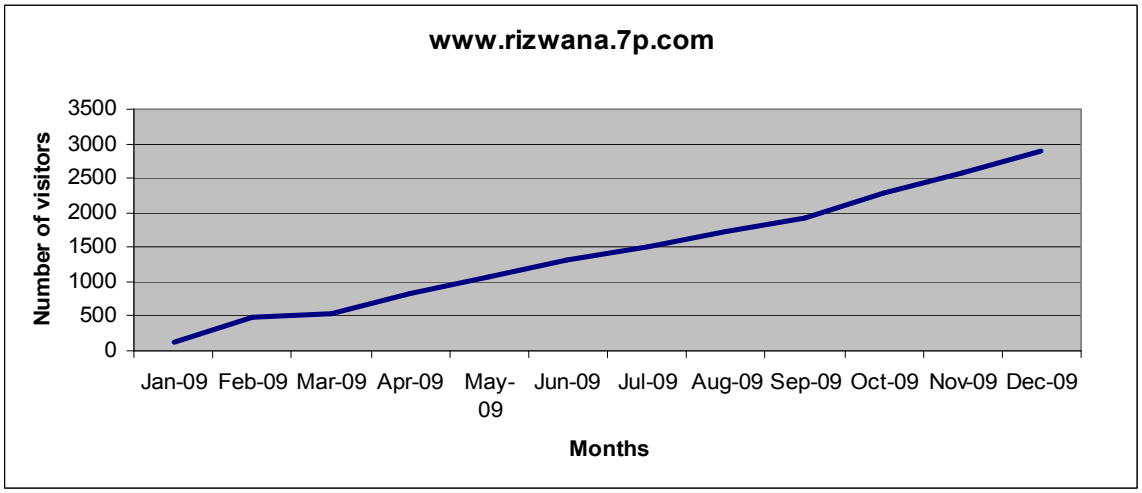

Figure III: Principle Use of Students on the Internet

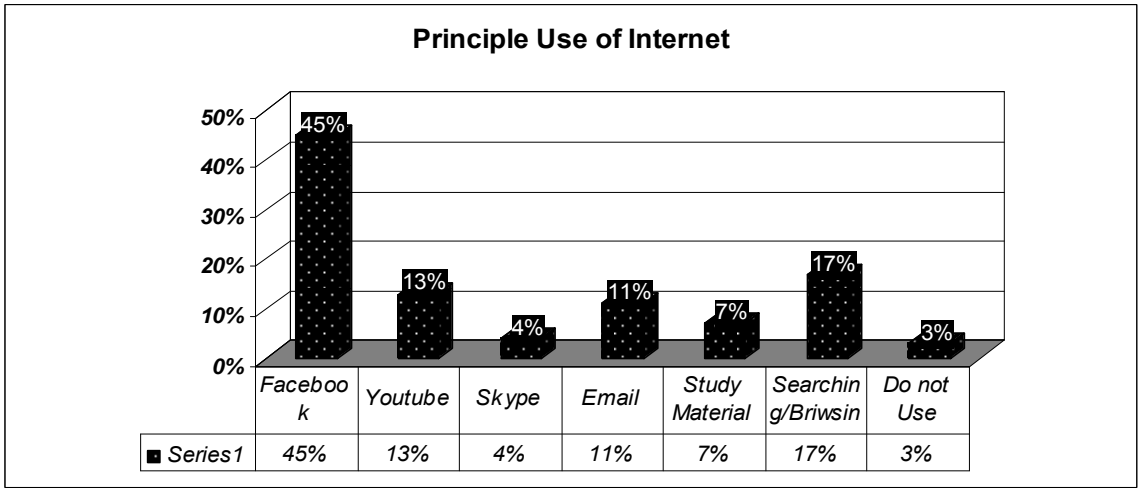

Figure IV: Ranking of the priority of students for Web resource

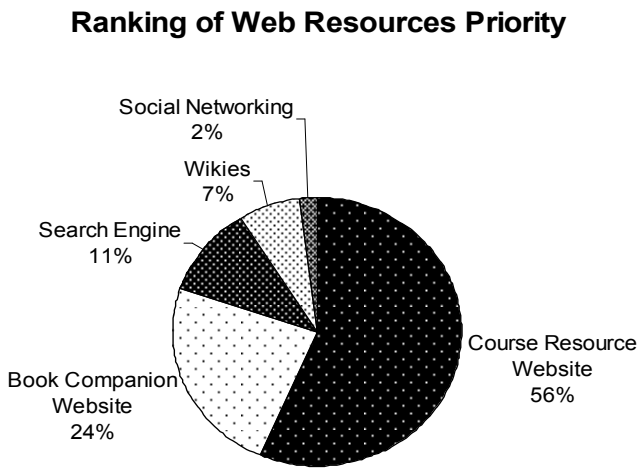

Fig. II also states the similar sort of trend for the (www.rizwana.7p.com) faculty resource pages developed to provide web based assistance to the students in economics related subjects. The trend line in the above mentioned figure shows a constant increase in number of visitors month wise. Around twenty eight hundred visits were recorded by the web statistics intelligent agent, who visited the particular website in a year time.

In response to a survey question regarding principle use of the internet students responded openly. Students were provided with a questionnaire on which they were not required to mention their names. The respondents (students) were instructed to freely mark their choices. According to the results received, 45% students admitted that their major portion of the online activity is spent over the Facebook, 13% spent their maximum time on browsing the YouTube videos, 4% are connected with their friends and relatives using skype, 11% respondents use the internet primarily for accessing their emails, 7% students claimed that they use the internet to access the online study materials, 17% respondents admitted that they spent majority of their online time in searching and browsing various issues or topics, 3% respondents admitted that they don't have access to the internet or they don't use the Internet.

In a reply to a question related with the online working preferences of the students and their choice of selection of a Web resource, fifty six percent students find it convenient and more effective to find and locate the related data from the course resource website of a subject developed by the concerned faculty member of the particular subject. Twenty four percent students find book companion website more effective than the any other web resource. Eleven percent prefer search engine as their basic web resource for teaching and learning. Seven percent favors wiki and two percent favors social networking websites as the source of sharing teaching learning materials online.

V. CONCLUSION

The web based learning initiatives taken at University of Karachi and Defence Authority College of Business has proved quite successful. The evolutionary approach taken has highly contributed towards the success of web based learning initiatives. The click rate of the teaching recourse website is tremendous and website popularity shows an increasing trend. The students learning and satisfaction are also quite high.

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