Web Based Education and Training

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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 nationwide 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.
This paper on "Web Based Education and Training" will try to open up new opportunities to extend learning outside space and time boundaries. It describes how The Web Based Education / Learning has the potential to meet the perceived need for flexible pace, place & face.

Introduction: Web-based education is one of those innovations which make Technological change, which not only permits new activities but makes those new activities superior in many important ways over the previous method of operation, creates long lasting innovations in society. In web based education we have two different types, asynchronous (self-directed, self-paced) and synchronous (instructor-facilitated) 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.
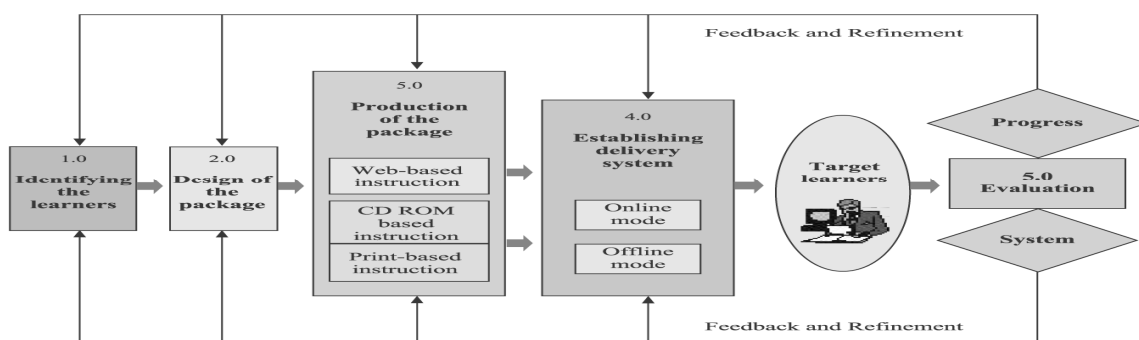
Why Web-Based Education?

Collis presents four main reasons for adopting web-based education. The first is the need to re-affirm some basic principles of good teaching and learning: active engagement of the learner, assessment of
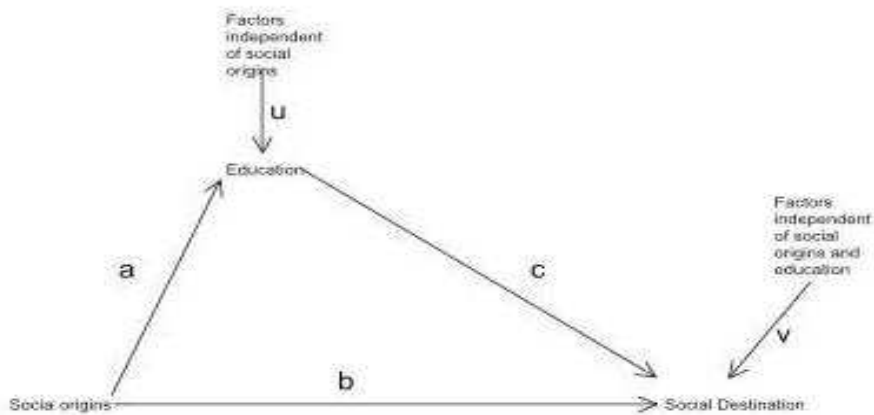
competencies based on a communication-oriented pedagogy, scaffolding of learning processes, and variety in feedback and efficiency reasons (individual pace). The second reason relates to changing student demographics: the characteristics of students are so varied that the traditional approach based upon the homogeneous nature of the target group is no longer valid. The differences are related to age, educational background, experience, culture, native language etc. Third is the need for more flexibility: Collis et al. [2] distinguish between 23 types of flexibility. The most important reasons to pursue flexibility are related to (i) where you want to study, (ii) when to study and to take assignments, (iii) what to study in relation to individual needs, interests or prior knowledge, (iv) the amount of communication required and (v) adaptation of assignments to workplace duties. As a consequence web-based education is offered especially in relation to the following variables: location, programme, types of interaction, forms of communication and study materials.

The final reason is providing professional and academic leadership. Educational institutes have a responsibility to model adequate methods of teaching and learning and thus give learners experience with new ways of dealing with knowledge. In this way they themselves can rely on a richer repository of possible teaching and learning formats in the future. Comparing the JIU with these four reasons to adopt web-based education, we see that the 'flexibility' issue is of prime importance. JIU attracts students with full-time jobs or who live too far from existing institutes. This observation is also in line with the fact that institutes that traditionally cope with the flexibility issue adopt web-based education more easily. Open universities and distance-education institutes have nowadays well-established approaches to web based education. But these institutes are also in stages of transition and have not yet moved completely towards web-based education.

The JIU has only existed for 4 years and was explicitly designed as an online learning institute. Most educational institutes have a history and during this time they have developed an educational approach in line with the available infrastructure, characteristics of the student population, the professional status of the staff etc. Introducing web-based education in such institutes is not straightforward. This is why, next to the 'why' question, a very conscious approach should be stressed regarding the educational model that institutes adopt when introducing online learning. We accept the potential of web-based education but insist on looking for congruency between existing educational models and models being introduced by adopting web-based education.

Some Facts And Figures:

Educational media

Face-to-face

Computer conferencing

Video conferencing

Audio conferencing

CAI

Web based learning

Radio

Television

Correspondence

Interaction

Independence of time and distance

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ELITE
ADVANCED
TRADITIONAL
INTRODUCTORY
SIMPLE

Number of Web sites

Educational levels addressed through the Web site

PreK-12, K-12, K&Elem, Elem, Elem&Middle, Elem-High, Middle, High

There are seven important functionalities in web-based education:

 (1) Real time announcements

(2) Posting of text, html, spreadsheets, videos, PowerPoint, audio files,

(3) Real time grade book

 (4) External links

 (5) Discussion board and chat rooms

(6) Automated quizzes and

(7) Emails to individuals and list serves.

 For the student, the announcements are on the opening page of the course. The announcements allow the teacher to give the students needed information items, as the course evolves during the semester. The student can view all the announcements or only the most recent as he or she wishes. This is very useful as the announcements are available immediately to the student as the teacher makes the posting. In addition, the teacher has a record of when the announcement was posted and modified. This leaves the student without the traditional classroom argument that "I did not hear the announcement." Most new users of online or web-based education use the announcements and the functionality of posting materials. Teachers find that posting their one or more page syllabus useful because the students have it easily available and can print it when they wish or as often as they wish. However, few teachers really take advantage of this functionality. For example, very few post their PowerPoint lecture notes or their lectures on Blackboard. For beginners, the real time grade book, external links, and email functions are wonderful. Students want their grades posted as soon after the test as possible. With software like Blackboard, they can go to their grade book and see the instructor's grades as soon as they are posted. The added advantage is the software protects the privacy of the student by permitting the student to only see his or her grades. External links provide the student with Internet sources that are particularly important and useful from the teacher's point of view. The email function is very handy as it allows the teacher and student to easily communicate with each other or with the whole

class as a group using a list-serve. In addition, there is a drop box capacity, which allows the student and teacher to send files and easily keep track of what was sent and when. This is especially useful for students submitting assignments or faculty returning assignments with their comments. For the more advanced users, the teacher can use automated quizzes. If the test is objective or uses "fill in the blank" but not subjective questions, the teacher can post the quizzes on the Internet and have the computer grade it automatically. The student goes to the quiz, enters the password for the quiz, and takes either a timed or non-timed quiz. When finished and submitted, the computer tells the students which answers were incorrect, provides teacher feedback on each question, and enters the score in the grade book. The teacher has the option of allowing the student to retake the exam or not. If security is a concern, the teacher can ask the students to take the online quiz in a controlled computer lab environment in which IDs would be checked and students would not have access to any other materials. The professor can also configure quizzes to have the computer randomly selects questions from a large question pool, which also helps discourage cheating. For even more advanced professors using Blackboard, there is the discussion board / chat rooms. This permits students to interact with the teacher and other students with the computer. Chat rooms require students and the teacher to get on the computer at the same time and then communicate with each other over the computer screen. For those who wish student and instructor interactions, most users prefer the asynchronous discussion board, which is active for a set period of time such as a week. During that time, the teachers and students log-on and record their thoughts on the topic plus the comments of those who spoke earlier. All thoughts are captured on the computer. The advantage of the discussion board beyond the recording of comments is the opportunity given to the students of developing more thoughtful comments over a longer period of time. The activity of the teacher in a given discussion board forum can vary from nothing to strong guidance to keep the students on point and focus their comments. The most advanced professors can also use software produced by Tegrity, Real Player, Apple's Final Cut, or Microsoft Producer. With this software, professors can record their lectures and post them on Blackboard using streaming video. All of these products allow professors to merge their PowerPoint lecture slides with a video of them lecturing using the slides. The functional advantages and prices of these various products 6 vary significantly. For example, Microsoft Producer requires a three step operation of preparing PowerPoint slides, capturing the video of the lecture, and integrating the slides with the video. The big advantage of Microsoft Producer is the zero cost for those who own PowerPoint 2002 or higher. In addition, professors can use other off the shelf software to prepare and then post audio and movie files using streaming video. If the professor posts a combination of video and audio lecture files, students can download the video files at the university high speed computers and the corresponding audio files at home using their phone line connection in seconds. However, if the students download videos from phone line connections, the normal download time for streaming video is much slower and the downloaded video quality is much less. Therefore, the professor is wise to post both video and audio only files of their lectures to maximize the students' ability to review the lectures with minimum frustration. In these learning systems, the range of functionalities is not just an impressive array of IT bells and whistles. They have been designed with specific pedagogical and cognitive development theories supporting them (Leamnson, 2001; Franklin and Peat, 2001; Matuga, 2001). Given this range of functionalities, how can a teacher maximize the use of this software? Frankly, the answer varies according to the creative teaching style of the teacher. The approach presented here assumes an entire online experience and almost no face to face interaction with the teacher or other students. With this approach, students must learn how to operate in a "virtual" environment and thus the teacher must make sure the students have adequate training time in a computer lab. This training is essentially only for students taking their first online class. The more

advanced users of web-based education should integrate the functionalities of Blackboard based on the teacher's course objective and the teacher's judgment on how to best present the material to the students.

First, the teacher needs to place on the web site all course material including syllabus, external links, reading materials except the required books, lectures, full instructions on all aspects of the class, quizzes / tests, videos and audio files, and so on.

Secondly, the teacher must consider how to us the quizzes to maximize the learning experience. For example, the teacher can use the quizzes, which the students take, to reinforce the text assignments and lectures. The teacher does this by merely allowing the student to retake those quizzes, which are then called "friendly" quizzes. In addition, the teacher should award a small portion of the total grade for these friendly quizzes in order to insure the students take them. Students will take the friendly quizzes, review the questions and correct answers carefully, and then retake them to improve their grade. The result for the teacher is that the computer takes attendance automatically and the computer re-enforces the key points of the lesson. Another web-based teaching ploy involves teaching practical lessons such as analytical techniques. The teacher first presents the analytical concept with text and video lectures. Next, the teacher provides practice friendly quizzes so that the students can perform using the analytical technique correctly. Finally, the teacher provides non friendly quizzes on the technique to insure the students have actually learned the technique. In showing the technique, the teacher might wish to link the quizzes with spreadsheets or other software to make sure the student uses the technique with available software tools.

But Is Web Based Design Any Good?

The nay-Sayers of this innovation are many but this article only addresses concerns related to teaching public administration at the graduate level. Certainly, professors, especially those under consideration for tenure, will not want video records of their teaching that a tenure committee can use against them. Certainly, college administrators will not want to radically change the way they organize the teaching effort. Resistance to innovation is normal and overcoming that resistant will be difficult, as is true with most major innovations. This section of the article will review some of the more common criticisms of web-based education.

Criticism One. The academy has not conducted a thorough research on the efficacy of learning online (Speck, 2000; Green, 1999; Merisot and Phipps, 1999). With this argument, we would not implement any innovation. This argument tells us not to implement this innovation until the academy and policy makers are confident that this new innovation will live up to its promises (Speck, 2000: 74). This is a cry normally heard when a major innovation starts to happen. The answer is also normal. Certainly, due caution is necessary but this should not be a reason for stopping innovation. Try it and see what happens on a more limited basis. If it works, expand its use. If it does not work, then stop the implementation.

Criticism Two The academy has not prepared professors to teach online classes (Speck, 2000: 75). In any innovation, the first stage sees innovators that are willing to experiment without proper assistance or guidance. Ideally, professors should be compensated for their time and effort the first time they prepare such classes. Ideally, a full technical support staff should exist to assist the professors and even teach the professors what to do. Hopefully, such support will occur at the better universities but many will just do the best that they can. As more and more professors have experience with web-based

education, they can share their knowledge and provide then needed teaching expertise in seminars and training sessions.

Criticism Three With web-based education, the academy has adopted an entrepreneurial desire for economic gain rather than the desire to support through acquisition of knowledge thorough rigorous education (Speck, 2000: 78). Clearly, many institutions of higher learning will see web-based education as a means to increase revenue and that will motivate their decision rather than providing rigorous education. However, this does mean that web-based education is not a means to provide quality rigorous education.. The other classic cure is the market place where students and employers seek out places that offer quality education regardless if is traditional or web-based. Those universities that do not offer a good product will not attract students and employers will not wish to employ students from those programs.

In summary, teachers can abuse both web-based education and traditional education but both can also provide the necessary quality rigorous education. The reasons for poor teaching remain the same in both approaches: poor instructors and poor educational policies at the university level. Blaming the approach is misdirected. Who among the people reading this article has not had at least one terrible classroom experience as a student under the traditional approach to education? However, fewer such experiences should occur in the web-based environment because there is a record maintained of the actual teaching and peer review of course materials is more easily accomplished. At its logical extreme, web based education does require radical change and the cries of resistance will be loud. In fact, the very nature of the human condition seems to include resistance to most changes. For example, some still argue against the automobile over driving a horse and carriage. But resistance to innovation does not mean that change should not occur. With resistance to innovation, we need better management, planning, and flexible leadership to not only overcomes the resistance but to use the constructive criticism in the resistance to improve the innovation.

Barriers to Web Based Education: In public administration education, the resistance of faculty and the reluctance of higher educational administrators to adapt to this new approach will retard the advancement of web-based education. As noted before, new professors resist this approach because they do not have a secure position. They realize that the full use of this approach to teaching requires them to record their lectures and the development of this type of course requires a great deal more effort and organization on their part. In traditional courses, non-tenured professors know that tenure committees often make judgments on their teaching performance based almost entirely upon student evaluations. Actual evaluations of their course content teaching materials are rare. Therefore, they focus on preparing entertaining and often relatively less challenging course materials that appeal to students.

In web-based courses, non-tenured professors know that tenure committees will make judgments on their teaching performance using the course materials they develop and post online for the world to see. For example, any misstatements and errors are officially "on the record" for the tenure committee to see during the tenure process. Therefore, there is less chance that they will get a positive review under the web-based approach. Being normal intelligent people, they will naturally avoid web-based teaching. Also, web-based education requires a great deal more effort. Tenure committees judge non-tenured faculty on education, service, and research. The latter normally means publications in peer review journals.

If in five or six years, a non-tenured professor does not publish enough, and then he or she is out of job. At better universities, the teaching load per semester is lower but the publishing expectation is

higher. The reality of web-based teaching is that it requires at least double the amount of time per class if the teacher both prepares and manages the class. The communication (email and discussion board primarily) between the teacher and the professor is much greater in a web-based class than in the traditional class. In addition, preparation is more complex. In traditional teaching, the professor only needs a syllabus, an extensive set of notes, some tests, and some plan to present the material to the students. In web-based teaching, the professor needs the same as the traditional class; but he or she also needs a complete set of PowerPoint slides that cover the lecture notes, videos of him or her lecturing each PowerPoint presentation, a very large set of objective quizzes with feedback comments on right and wrong answers, and a set of forums for the discussion board. Because the course preparation time is often double that of the traditional class, there is less time available to publish in spite of the fact that publishing expectations are not lowered. Thus, web-based education increases the new professor's risk of perishing in their "publish or perish" world.

Tenured professors are also not encouraged to support this method of teaching because of the greater work required, the new required skills and the increased accountability for what is taught. It requires them to learn a whole new set of teaching skills. For example, the professor should learn and use Microsoft Producer. This means the professor needs to master the use of PowerPoint, video presentation, video production, and integration of PowerPoint with the produced videos. Without some form of compensation, either financial or in release time, few tenured faculty are likely to take on the extra work. Once a course is placed on the web, the department chair might wish to see and comment on the professor's work, which before was probably never reviewed unless student complaints warranted it.

Administrators will find web-based education a challenge because the need for technical support and equipment is critical and the whole structure of the academic department will change. In traditional education, the academic department need only ask the library to order books, the facilities people to find classrooms, and secretaries to help faculty type papers and so on. In web-based education, the academic department needs to do all the same things but it must also hire course tutors as adjuncts or instructors to work with senior professors. The senior professors prepare the major online courses and ask the computer support staff to always keep the online course available for students and provide the necessary digital camera equipment and adequate computer capacity. This means that academic department budgets will shift to increasingly pay for less expensive adjuncts and instructors, who will be less qualified and also less committed to the institution and the program than tenure track faculty. This also means department chairs must manage the tension between the more prestigious tenure track faculty and more numerous instructors.

Many new web-based professors may not like that their job now requires administration. In traditional education, the professor might supervise a graduate assistant but essentially the professor did the teaching. In web-based education, the professor must also work with the computer support staff and course tutors. The introduction of new computer technology, the need to keep the course up on the web, and the desire to upgrade the quality of the course materials require the professor to have a strong relationship with the computer support staff. The professor's primary responsibility will shift to preparing and updating the online class materials and the actual daily relationship with the students will fall to the course tutors. The course tutors must also interact with the professor in order to improve the class and clarify any points of confusion over course substance. The relationship with course tutors maybe within the academic department but it can also be a virtual relationship when the course tutor works at other universities that merely contracts with professor to provide the course material. One

simple method to overcome the above barriers is merely to pay the professors extra money to move to online teaching. Given that web-based education actually should increase revenue, the university can use some of the extra money for that purpose. Typically, a university might be willing to pay the professor more money for the extra work of preparation but additional continuing compensation is not likely. However, web based professors may soon argue that students at other universities and sites take their classes and they should receive higher compensation. Such web-based professors will be in demand and should command larger compensations.

Conclusion and Implications: Web-based education is a reality but it is also a changing reality. In many universities, online education in public administration is not much more than placing a correspondence course on the web. Correspondence courses are useful but they also have well known limitations. Many online courses share those same limitations. In the rush to technology, many universities felt that placing text on a web page was the answer and they saw a cheaper way to provide higher education to more students. This article is not about that type of education. Technology provides a remarkable new plateau to launch education for the creative university and professor. Web-based education is more students centered rather than professor centered education of traditional education (Knowlton, 2000). Within instructor decided limits, the student now picks the place and time to learn. The student can look at the lecture not once but see it as many times as the student wishes.

In addition, the student can push the pause button and freeze the lecture to check a reference, answer a phone, or do whatever is immediately needed. Web-based education permits the professor to introduce the student to a much richer variety of text, external links, audios, and videos to the virtual classroom. The student becomes a seeker of knowledge rather than a repository (Freire, 1970). Timely feedback is important in education and web-based education provides instant feedback. A full use of the discussion board permits much better student dialogue than traditional education and a record exists on the exact content of that dialogue. Creative professors can educationally link videos, PowerPoint slides, discussion groups, and quizzes. Creative professors can use these means to teach analytical techniques or better human relations (Knowlton, 2000). Notwithstanding the real educational advantages, the driving force for this policy shift will be economics. The costs of higher education are high and the pressures on government budgets are significant. Given those pressures, getting more education for the tax dollar will become increasingly important.

For example, in most states in America, many local and some state government administrators find getting an MPA degree practically impossible with traditional education but will find it very possible with web based education. With web-based education, a consortium of state universities can prepare MPA courses and have them taught by local course tutors at a fraction of the cost of the traditional approach. Such budget arguments are real and will eventually encourage universities to experiment and then adopt this approach to education. At one time even the oldest technologies were new. The more significant ones changed the human condition. For example, using written symbols to represent information was an innovation at one time. It had a remarkable unanticipated and significant impact on the way people thought and spoke, as it created literacy in society (Ong, 1982). Another example is the discovery that extracting metal from rock made firmer substances that not only changed construction practices but also the art of war (Leamnson, 2001). Neil Postman (1992) said, "[t]echnological change is not additive; it is ecological. A new technology does not merely add something; it changes everything."

The web is a new technology that is now starting to change the education process itself in the form of web-based education. Resistance to this innovation will also occur, but resistance occurs with each new innovation to some extent or another. Some people still refuse to use a telephone or go to a doctor for modern medicine. Many professors and universities will resist web-based education but web-based education will grow. In the process of growth, no doubt many professors and universities will poorly use the technology available to teach online just like many people drive an automobile poorly or use other technologies unwisely. Their problem is not the innovation but their capability, which they refuse to improve. This innovation will grow and it has the strong potential to significantly enhance the delivery of public administration education to humankind.

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