

Guest Column...

Setting-up an Online Delivery System in Higher Education



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Education and training has gone through a number of radical changes in terms of design and delivery methods over a period of time. There exists different levels of technology use in education delivery ranging from chalk and board to use of the overhead projector, interactive television, general-purpose projection system, and highly sophisticated computer based training. Several technology-supported learning delivery methods are fully mature, widely accepted, and extensively used by an increasing number of educational, vocational and corporate training institutions. The primary purpose of technology use for education delivery has been to enrich the instructional effectiveness and provide flexibility to the learners. However, cost effectiveness and reaching larger student population remained as important factors for many institutions and resulted in the birth of distance education.

Distance Education

It was during the 1970s, many colleges and universities sought cost-effective and pedagogically sound ways to accommodate larger student enrolments, and provide

better access to higher education to people in need. However, the severest critics of distance education were the fellow academics from the traditional universities. When, The UK Open University was floated in the year 1969, it has been looked down as a Pariah by all the leading universities. And the same thing happened when India's first Open University, Andhra Pradesh Open University now named Dr. BR Ambedkar Open University was established in the year 1982, followed by Indira Gandhi National Open University (IGNOU) established in the year 1985. Now, the Asian region has the largest number of Open Universities, and some of them are trendsetters in innovation in education and training. It took more than a decade for the UK Open University to

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command respect among the academic community. It took time for the traditionalists to accept the advantages of distance education. Today, there is a large number of open universities coming up, and almost every "conventional" university has its own distance education programs.

This is exactly what is happening with the online education or online learning, started in mid 1990s. The traditionalists were once again up in arms to criticise the so-called drawbacks of online training, conveniently ignoring its advantages. Nevertheless, over the years, there is a growing realisation about the benefits of online

learning, and a number of universities and teaching institutions are slowly embracing online delivery.

Emergence of Online Learning

The Internet is emerging as a global mass media with the potential to transform education. Currently, the online learning has emerged as a new paradigm of learning with the advent of Internet as the medium of delivery. It is not the first time that such a paradigm shift has taken place in the field of education delivery. A number of innovations have been introduced over the years both in terms of technology and instructional designs. However, unlike other such innovations introduced, the online training combines the flexibility of distance education and the interactivity of conventional classroom based education.

Instructional Design

One of the most powerful features of the Internet is its ability to provide interactivity among geographically-distant people. It has a lot of scope for providing an instructional design that can make the learning much more interesting and easier. Further, the hypermedia provides immense scope for addressing the individual differences among learners through differentiated instructional design, and offer facilities for the learner to choose the learning method that suits best his/her style. The learner can be provided with customisable learning paths, including the instructional event sequence, for a specific learner based on his/her preference, background, experience, and prior knowledge level.

Anytime-anywhere Learning

The online training provides an efficient and cost-effective learning with any-time any-where flexibility. Online training offers the possibility to obtain skills without the trouble of commuting and attending training in a classroom. The 24-hour access to course materials allows the learner to learn on his/her own time and pace. The on-line interactive courses delivered via the Internet are

not only flexible in terms of time and place but also as interactive as regular classroom based training.

Access to the Best Faculty

More than the convenience, the online learning provides opportunities to interact with best of the faculty who would otherwise be unavailable. Additionally, it also helps the learner to master the communication skills needed in the cyber world.

Rich Learning Experience

Online courses have the capacity to offer a rich learning experience that takes full advantage of the electronic medium. The technological advancements made in the last several years allow educators to create learning materials that communicate subject matter through new and exciting interactive mediums. An online training is not just a lecture on the web! The online training is well designed and organised, usually by a team of people including the teacher and design and support staff to provide a good learning experience. Online training is much more learner- centred than conventional classroom training. In online training, the learner can read, listen, observe, interact and practice too. Then, one can interact with other students and tutors to discuss about what s/he is learning.

The Classroom goes to the Learner

The biggest advantage is that there's no physical classroom to go, and attend the class on a prefixed schedule. Rather, the learner can attend the online-class whenever s/he has time and still participate in all the discussions, which take place between the fellow learners and the faculty. Lectures, coursework, assignments, questions, discussion, all take place at the learners' convenience - online. Plus, the learners receive personalised instructor feedback, and share insights and information with fellow online students.

In fact, with the powerful features of the Internet and intelligent instructional design the drawbacks

in the current form of distance education (DE) can be addressed to a great extent, rather they can be converted into advantages over the formal education. This in turn will also enhance the image of DE among the academia and otherwise. In such a scenario, the online education delivery cannot only compliment or supplement the DE but also can become a fully independent education and training system.

Setting-up Online Education Delivery System

When we discussed with institutions that are in the process of setting up online education on the purpose and requirement of the system, it was apparent that many of them lacked clarity. Their answers ranged from cost saving to flexibility and ramp up requirement. Hence, this brief article on setting-up online education delivery system.

The major aspects involved in setting-up an online education system are detailed below. These may vary to some extent depending on the mix of delivery mode and the education programs. In fact, the institutions that are planning for online education should try to position them by providing value added services and delivery design.

Feasibility Study

As a first step, it is important to do a detailed requirement study on the basis of the institution's offering, clientele, and infrastructure availability. Also important is the identification of programs and courses for online delivery considering the target audience. The involvement of faculty and other members of the institution in sharing responsibilities towards the online education delivery without compromising on their responsibility in their current role should also be assessed for estimation of the manpower requirement. The delivery and the evaluation strategies, whether it should be purely online based or a

combination, etc., should be part of the requirement study. Considering the course requirements, type of content, course objectives, learner profile, and the interactivity levels required, the instructional design and training delivery strategies should be formulated. Also, at this stage, various administrative system requirements such as registration, access control mechanism, etc. are formulated.

Instructional Model

An online learning delivery system can be leveraged in various instructional models, and every program or course can have a combination of instructional delivery models. Broadly, these instructional models can be grouped into following.

- Completely online based
- Online -supported
- Post course online support
- Online resource centre

The online supported courses will address the learning needs where the personal contact with the faculty is essential and requires some amount of hands-on for mastering the skills. The post course online support is ideal for providing mentoring or handholding of participants who attended short in-service courses.

Content Development

This refers to development and production of learning materials as per the instructional technology and design formulated, based on the learning delivery requirements. The various activities involved in learning material creation are envisionment, requirement analysis, visualization, media and content development, storyboarding, construction and integration, and testing and evaluation. Depending on the development methodology and the scale of operation these stages can vary. It is important for the institutions to have clear understanding on the courses and programs to be launched, the development effort required and the strategy by which it will be executed. The learning material development and learning service

components are the most effort intensive and requires well thought out plan.

It is recommended that the institutions should develop in-house expertise in learning material development for the online delivery. Since, the type of programs and courses offered may be unique to a great extent, the subject matter expertise is mostly available within, and the nature and focus of courses may keep changing, the need for new development and up-gradation may be a continuous process. Hence, it is recommended that the institutions should have a facility for in-house development with a small development team to start with. In addition, the faculty needs to be oriented in online content creation as per the process outlined for development.

Learning Delivery System

This refers to creation of the site and various navigation systems, database design, messaging systems and other backend operation systems, including the administrative interface and integrating them together as an online learning delivery system.

Various facilities and features that are needed in a virtual learning environment vary depending on the need and purpose for which it is established. The learning and administration features are primarily dependent upon the type of courses, subjects, need for laboratory exercises, instructional design adopted for delivery, testing and certification requirements.

Delivery Site

The site should reflect the personality of the institution, its programs and services, the type of image it wants to present; and provide sufficient information for all the stakeholders of the site. Selection and use of layouts, style, colour, fonts and images are part of the site personality.

The navigation should be simple and user-friendly. All basic information should load fast in the most common browsers and should

be reachable in minimum number of clicks. Site content structuring should reflect the structure of the institution. Site navigation and learning navigation should be differentiated and easily accessible. In general, the major facilities offered in the online delivery site can be broadly grouped into two: a) learner facility and b) administrative facilities, and some of the features that can be made available in the facilities are listed below.

Learner Facilities

- Online registration
- Create and modify personal info/profile
- Track learning plan progress
- View all enrolled courses from the Learning Desk
- View/browse courses from the personal Learning Desk
- View reports on assessment results
- View course related FAQs
- Check their understanding/learning
- Access the online library
- Access the resource centre
- Send queries to the faculty for doubt resolution
- Participate in the relevant peer discussion forums
- Take pre-assessment tests
- Take practice tests
- View the learning plan
- Practice exercises
- Take practice assignments, projects, and case study analysis
- Facilities for synchronized discussion with peer and faculty
- Audio and video embedded courses

Administrative Facilities

- Create and modify user accounts.
- Create and modify user role.
- Create and update courses.
- View and produce reports on course usage.
- Track learning plan progress by learner, course, and group/batch.
- View learners by course, date and curriculum.

- List learners by key information.
- Create and control access for batches/groups/subgroups.

These above listings of features are neither exhaustive nor mandatory. The actual requirement of these features should be based on the feasibility and requirements study. Alternatively a suitable Learning Content Management System (LCMS) can be used that provides most of the above features.

Learner Services

People think that creation of online learning is onetime effort and once developed it can go on. The important aspect of the online learning is the kind of interactivity it can provide for the geographically dispersed learners. Providing such synchronized and asynchronous interactivity requires not only the tools and systems, but people who can provide these services. For example, the faculty need to be available for an online seminar or answering a student query. Queries on specific courses, tutorials, mentoring, maintaining of various student interactive forums, seminars and conferences, are part of this service. In addition, this will also include updating of resource centres and online library.

Other than learning services, the students need to be provided service on admission & registration, responding to the front office queries, preliminary counselling, admission and registration. There should be a dedicated team/person (depending on the load) to handle this service.

Infrastructure Set-up

This component takes care of the basic infrastructure that is required to deliver online education to its learners and creation of learning materials, and infrastructure for the learning service personnel.

Regarding the hosting of online delivery system, these days many of the institutions have the basic necessary infrastructure. Else, they can go for either of the following options.

- a) Set up the institution's own information infrastructure

(networking, hardware and software) on a turnkey basis.

- b) Host the online delivery system on a third party's (ISP or who has facility for hosting) infrastructure and subsequently shift the site to own facility.

Ongoing Operations

This is one major aspect often missed out or rather ill-planned in any technology project implementation. An important element of an online education delivery system is the interaction between student and the online faculty and discussion with peers through various synchronized and asynchronous interactivity tools for query resolution. Once the system is functional, the provision of the learning services would become the responsibility of the subject experts available within the company or institution.

Appropriate mechanism needs to be devised to have its dedicated online faculty to service the learners. Broadly the ongoing activities can be grouped as below.

- a) Maintenance of various systems, site and other infrastructure.
 b) Providing services pertaining to learners' queries and other interactive services.
 c) Management of learning services.

Though various functions mentioned above look distinct and clear, they are highly interrelated and the various functional teams need to work in tandem with each other.

Buy vs. Build

The institution that is preparing for online delivery should consider various pros and cons and decide on to buy a pre-packaged LCMS solution or to build one with custom requirements. Almost every company that sells LCMS stresses that their software can revolutionize the way e-learning is delivered. They say that with their system, one can quickly and effectively deploy a training system. Or even create an online

university! Further they claim that courses can be created on the fly with the help of wizards and templates. Almost all of them provide features ranging from e-commerce, course management, various forms of collaboration and interactivity to assessment and reporting systems. Many of them say their system is interoperable and port courses developed by a various vendors who adhered to standards such as AICC, IMS etc. and willing to customize features and interoperability. But do you need them? Do you have a plan to buy course content from multiple vendors? Does your instructional methodology require all these features? Do you have budget for such operations? These are some of the questions that need to be raised before taking a decision on buying a readymade LCMS.

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Almost every company suggests that interactive courses can be built on the fly using their LCMS. What kind of courses? A set of simple HTML pages with a combination of multiple choice test items! If you need real multimedia rich content, they would suggest that you should create with other tools such as Flash, Authorware, Director, etc to name a few, and import to the LCMS. It implies that in addition to LCMS, you need to have these tools and the skills to use them. There is whole lot of hidden cost in terms of associated software tools, customization, and upgrades. Typically an LCMS license is provided in terms of number of users, number of courses, and the number of installations or on a revenue sharing basis, which results in increasing the final delivery cost.

Most of the LCMSs provide a variety of interactivity tools just for

the sake of adding more features in their product. For example, course based chat rooms. A faculty who is well versed in using chat can handle at the most four to five students. Look at the faculty student ratio in such an environment and the operational cost.

Considering the time it takes to develop the entire online delivery system, the tilt may go in for "buy" option. However, the institution needs to consider various other aspects to take a meaningful decision, and may opt for phase wise development of its own LCMS with certain essential features. The system can be enhanced based on the way the "delivery approach" evolves over a period of time.

The development cost of online delivery systems can vary depending on the technology used, the features, portability, and various inbuilt reporting and maintenance features, which the system incorporates. It can range from mere \$ 50,000 for a basic system to a few million dollars for the full-featured delivery system development.

Management Council

The heads of departments and centres that offer these courses should form the core team that manages the online delivery system. In addition to the management structure, it should have an advisory council, similar to an academic council of the university system, drawn from different departments and functional areas and headed by the head of the institution. This council should be made responsible for advising the management team on policy guidelines and launching of various online courses and programs.

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This guest column has been written exclusively for **EduComm Asia** on invitation. 