

# SUPPORTING INFORMATION TECHNOLOGY AND E-LEARNING IN HIGHER EDUCATION

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## Abstract:

As Information Technology becomes more robust and easier to use, it increasingly permeates academic activities in higher education. The use of Information Technology in education, commonly defined as e-learning and it has become a standard component in many courses. Information technology has emerged as powerful tool for diffusion of knowledge and information. Their introduction and unprecedented use in the higher education has generated varied response. It is inevitable that their increasing use in education system will also raise issues regarding what kind of technology, in what quantity, at what level and for what purpose they need to be introduced. The aim of this paper is to highlight effective information technology and e-learning resources and support practices at educational institutions.

**Keywords:** Information Technology, E-learning, Internet, Higher Education

## Introduction:

Education is the driving force of economic and social development in any country. Considering this, it is necessary to find ways to make education of good quality, accessible and affordable to all, using the latest information technology available<sup>1</sup>. The last two decades have witnessed the inclusion of developments in information technology and e-learning in higher education systems around the world. Even then the challenge to develop a higher education system that is flexible and dynamic so as to holistically integrate the technology in the management and delivery of programmes is daunting. Information technology has changed the dynamics of various industries as well as influenced the way people interact and work in the society<sup>2</sup>.

Most important question, which comes in mind, is what should be the role of information technology and e-learning in higher education system. The unprecedented changes have taken place in the society due to the impact of rapidly growing technological interventions. The delivery mechanisms and content of education in general and higher education in particular have been highly influenced and are under satisfaction. These changes are creating enormous opportunities for improving the quality and efficiency of education on the one hand and on other present challenges before us to design and develop mechanisms to harness the great potential of information technologies and e-learning for achieving the set goal.

Internet usages in home and work place have grown exponentially. Information technology has the potential to remove the barriers that are causing the problems of low rates of education in any country. It can be used as a tool to overcome the issues of cost, less number of teachers, and poor quality of education as well as to overcome time and distance barriers. At many institutions, students' academic experiences have changed in just a few years. Wireless networks, course management systems, multimedia, and other technologies add richness and complexity to the learning experiences. Instructors and students can use a mixture of websites, multimedia, and traditional textbooks as learning tools. Course discussion can occur in a classroom, in a chat room, or via video conference. Class time is now any time, because instructors and students communicate, complete or review assignments or access course information online at all hours<sup>4</sup>.

## Information Technology and E-learning Issues:

Technology an innovation always had a place in academic research, but now they are changing the way in which universities teach and students learn. Moreover, rapid developments educational use of technology (referred to as e-learning) have the potential to radically change pedagogic practice. Online application and access to information serve to expand the course or module's range to whenever and wherever the students and lectures need<sup>3</sup>.

The term "e-learning" focuses on three types of e-learning courses:-

- **Traditional courses supplemented with technology:** The instructor teaches all sessions in the class room but incorporates technology in some or all classes (using presentation packages, web based activities, multimedia simulations, online testing and so on).
  - **Online distance learning courses:** The instructors conduct class sessions online- not via mail or telephone. This usually requires no face to face meeting between students and instructor either in the class room or via video during the course.
  - **Hybrid courses:** The instructor combines elements of online distance learning courses and traditional courses to replace some class room session with virtual session, online forum, or web based activities. As educational institutions adopt e-learning, some important new issues arise:-
  - Institution must provide an adequate and reliable technical infrastructure to support e-learning activities<sup>5</sup>.
  - Instructors and students must possess the technical skill to use e-learning tools.
  - Instructors must redesign their courses to incorporate e-learning effectively into their pedagogy.
- But as e-learning courses multiply, institutions question whether they can provide the necessary support resources to address these issues.

#### **Advantages of Information Technology and E-learning:**

Information technology and e-learning has the following advantages-

- Eliminating time barriers in education for learners as well as teachers<sup>7</sup>.
- Eliminating geographical barrier as learners can log on from any place<sup>7</sup>.
- Asynchronous interaction is made possible leading to thoughtful and creative interaction<sup>7</sup>.
- Enhanced group collaboration made possible via Information Technology.
- New educational approaches can be used.
- It can provide speedy dissemination of education to target disadvantaged groups.
- It offers the combination of education while family and work life<sup>7</sup>.
- It enhances the international dimension of educational services (UNESCO, 2002).
- It allows for just in time and just enough education for employees in organizations (UNESCO, 2002).
- It can also be used for non-formal education like health campaigns and literacy campaigns (UNESCO, 2002).

To summarize, the following table shows the main benefits of using IT and e-learning in education to the various stakeholders:-

Stakeholders	Benefit
Students	<ul style="list-style-type: none"> <li>• Increased access,</li> <li>• Flexibility of content and delivery,</li> <li>• Combination of work and education,</li> <li>• Learners-centred approach,</li> <li>• Higher quality of education and new ways of interactions.</li> </ul>
Employers	<ul style="list-style-type: none"> <li>• High quality, cost effective professional development in the workplace,</li> <li>• Upgrading of employee skills, increased productivity,</li> <li>• Development of a new learning culture,</li> <li>• Sharing of costs of training time with the employees,</li> <li>• Increased portability of training.</li> </ul>
Governments	<ul style="list-style-type: none"> <li>• Increase the capacity and cost effectiveness of education and training systems,</li> <li>• To reach target groups with limited access to conventional education and training.</li> <li>• To support and enhance the quality and relevance of existing educational structures,</li> <li>• To ensure the connection of educational institutions and curricula to the emerging networks and information resources,</li> <li>• To promote innovation and opportunities for lifelong learning.</li> </ul>

Table:- Benefits of IT and e-learning in education to main stakeholders.

#### **Innovative Approaches for teaching:**

Information technology has the potential to drive innovative and effective ways of teaching learning and research. The various kind of information technology products available and having relevance to

education, such as teleconferencing, email, audio conferencing, television lesson, radio broadcasts, interactive radio counselling, interactive voice response system, CD and DVDs etc have been used in education for different purposes<sup>13</sup>.

Information technology can be used as a tool in the process of higher education in the following ways:-

- **Informative tool:-** It provides vast amount of data in various formats such as audio, video, documents.
- **Situating tool:-** It creates situations, which the student experiences in real life. Thus, simulation and virtual reality is possible.
- **Constructive tool:-** To manipulate the data and generate analysis.
- **Communicative tool:-** It can be used to remove communication barriers such as that of space and time<sup>11</sup>.

Information technology also allow for the creation of digital resources like digital libraries where the students, teachers and professionals can access research material and course material from any place at any time<sup>6</sup>.

### **Policy Initiatives for IT and E-learning in Higher Education:**

The Indian policy for developing IT as a vehicle for promoting education is visible since the use of satellite in early 1970s. Presently, India ranks 45 in the Network Readiness Index. Although the number of Internet users and penetration of PCs is in fractions online educational enterprise started emerging in early 1990s<sup>12</sup>. In addition, the National Task Force on Information Technology and Software development: IT Action Plan Part III, Long Term National IT policy (GOI, 1999) constituted by the then PM of India in 1998 gave fillip to efforts for exploiting rapidly emerging new technologies.

Subsequently, the UGC initiated scheme called “ICT for teaching and learning process” for achieving quality and excellence in higher education<sup>1</sup>. Network facilities with the help of ERNET, Ministry of Information and Technology, Government of India were installed at UGC office to promote a healthy work culture. Along with this UGC launched a mega programme namely, “UGC INFONET”, a network of Indian Universities and colleges, by integrating IT and e-learning in the process of teaching learning and education management. Information for Library Network (INFLIBNET), an autonomous interuniversity centre between ERNET and universities. In addition, UGC is encouraging creation of e-content/learning materials for teaching learning process and management of education in colleges and universities.

The mission will focus on digitization and networking for all educational institutions, developing low cost and low power consuming access devices, and making available bandwidth for educational purposes. These initiatives would provide significant opportunities and pose new challenges as well for effective use of IT and E-learning in programme delivery<sup>9</sup>.

### **Efficiency in Higher Education Institutions:**

IT and E-learning can play significant role in bringing efficiency in the universities/organizations. Networking of various departments and sectors within the university/colleges and interuniversity networks established would lead to streamlining of university functioning<sup>8</sup>. The ongoing programmes namely UGC INFONET and INFLIBNET needs to expand further with the help of necessary financial resources to all the universities and colleges.

Establishment of online management Information system (MIS) provides good predictive management information, for instance ICAR is covering all agricultural universities, and UGC is in the process of developing. Development of MIS would result in efficiency and transparency, accurate and timely information, would provide support for decision making, easy access to information, would help in enforcement in standards, results in reduced data redundancy and call for associated efforts.

Website of the institutions developed would help in information dissemination and e-management, provide research related information, information of academic interest, information for students etc<sup>10</sup>.

### **Conclusion:**

Changing in the curriculum do support fundamental economic and social transformation in the society. Such transformations require new skills, capabilities and attitudes, which can be developed by integrating latest technology in education. The contemporary higher education systems are aiming for acquisition of IT and cleaning skills as part of the core education system, provision of infrastructure/fully equipped labs, professional assistance and other support needed to enhance quality of education. The time is right to push the driving forces hard as it is expected that implementation of initiatives to integrate IT and e-learning bring about improvement in higher education organization and quality education through IT and e-learning would be realized.

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