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INFORMATION TECHNOLOGY IN HIGHER EDUCATION AND A NUMBER OF BARRIERS TO IMPLEMENTING NEW TECHNOLOGIES

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Abstract

New, quickly developing technologies are altering higher education at the start of the twenty-first century. Technology has the capacity to completely change how people learn and teach. It may significantly increase access to lifelong learning and remove the constraints of time and geography on education. In order to study together from a teacher, students no longer need to gather at the same time and location. Modern technologies have the power to fundamentally alter how we think about higher education institutions. Higher education institutions are no longer required to be physical locations with classrooms and housing where students go to obtain a higher education. Access to education in the most remote regions is now available thanks to distance learning through satellite. In this regard, The National Policy on Education, NPE 1986 has correctly emphasised on the role of educational technology that "Modern educational technology should reach out to the most distant areas and most deprived sections of beneficiaries simultaneously with the areas of comparative affluence and ready availability," in order to avoid structural dualism. The goal of educational technology is to enhance learning opportunities and improve the effectiveness and efficiency of teaching and learning. There has been a population and knowledge expansion in recent years. It has been thought that educational technology is useful in handling this issue, which this study has addressed, in order to meet the difficulties of quantity and quality.

Keywords: Information Technology, Educational Technology, National Policy on Education.

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Introduction

For people with strong technical abilities and at least a bachelor's degree in an IT-related discipline, information technology is a rapidly expanding industry that offers opportunities that are generally secure. There are several specialities that deal with the many aspects of information technology, from support to engineering. The development, management, and maintenance of computer and telecommunications systems fall under the umbrella of information technology (IT). Database and network administrators, computer support professionals, computer scientists, software programmers, and system analysts are a few of the professions in this industry. The bulk of IT professional paths include designing and running networks, software applications, and computer hardware components. IT experts collaborate with businesses and organisations to build up and maintain strong computer networks that will keep systems dependable and efficient. IT includes every piece of technology and software utilised for information generation, archiving, and access. Firewalls, databases, media storage systems, networks, and the Internet are a few examples of the technology that experts use. ***The Programme of Action, 1986*** has therefore enunciated, “Education requires media support which is related to the curriculum as well as enrichment. Curriculum based education also requires materials which the teaching can draw upon both through various materials and media. Learning experiences can be provided through maps, models, transparencies etc. Audio and video technology offers considerable potential for improving the quality of education especially at higher levels. Thus, educational technology can play an important role in increasing efficiently of teaching-learning process and for making education more creative and innovative.”

Powerful forces are promoting higher education's adoption of new technologies. The rapid advance of globalization, that is lowering international barriers and transforming business world, is also expanding the potential reach of colleges and universities. With sophisticated communication technologies, institutions of higher education are no longer limited to student markets on educational resources in their geographic regions. Likewise, the growing need for lifelong learning opportunities to keep pace with social, economic and technological changes fuels demand for accessible alternative to traditional real time, campus based instruction. In addition, competition among higher education institutions contributes to advancement of technology within colleges and universities.

Although India has made great strides in the field of technology, the teaching-learning process does not effectively use the same technology. Although initiatives have been taken to encourage technology use, many schools and colleges have been given technological facilities, but things are still not right. These resources are not being completely exploited due to various practical issues, and as a result, they have been turned into an exhibit. As a result, the use of outdated and traditional teaching-learning techniques continues. Many barriers to technology adoption exist within colleges and universities. Academic traditions, such as faculty centered lecture, make many professors reluctant to adopt alternative instructional strategies as using the computer or telecommunication device. The cost of many technological applications also prohibits their easy adoption at many resource limited institutions. Limited support to help faculty and staff members learn how to take full advantage of technology is another factor inhibiting more widespread use of technology in colleges and universities. Another problem is to help faculty how to integrate information technology into their teaching? In addition, inadequate user assistance, a lack of qualified trainers, a lack of time, a lack of infrastructure, and ongoing software updates make it difficult to use technology. For higher education to fully benefit from new technological advancements, hardware investment is not enough on its own. Therefore, if the hurdles to its adoption are not effectively addressed by particular institutions or the educational system as a whole, technology will neither realise its full potential nor transform higher education.

Role of Information Technology in Higher Education

Technology can serve as a strong catalyst for change at the class room, school and district level. Technology is proving to be beneficial in many fields of life and education. Its role can be described as following:

- Technology improves pre service teachers' training by providing access to more and better educational resources, offering multimedia simulations of good teaching practices, catalyzing teachers to trainee collaboration and increasing productivity of non instructional tasks.
- Technology also enables in-service teachers by providing professional development opportunities and individualized training opportunities.
- Technology helps teachers to acquire and update knowledge. Consequently, there is a shift in their role from being the sole source of knowledge and instruction to being a facilitator of student's learning, which is acquired from many sources.
- Technology is helpful as a powerful tool for problem solving, conceptual development and critical thinking. It involves the person using technology to gather, to organize and analyze information and using this information to solve problems.
- Access to internet has opened doors to global learning. Teachers as well as students can use this facility. It is ocean of knowledge. Sitting at a place they can have access to libraries,

dictionaries and the latest information, which is not available in the text books. Thus, it gives freedom to learn at the learners' own interest, pace, time, energy and money.

- Besides this internet has diminished the distance among the people of the world. People can share their ideas and can have a discussion over a prominent issue. E-mail provides the facility to connect with others in a short period of time.
- Using technology students can spend less time in doing calculations and more time in creating strategies for solving complex problem and developing a deep understanding of the subject matter.
- Technology also encourages student collaboration, project based learning and higher order thinking. It makes students more engaged and more active learners, because there is a greater emphasis on inquiry and less on drill.
- Technology helps the teachers meet the individual learning needs of their students more effectively and to provide learning experience ranging from remediation to enrichment.
- Technology accelerates and enriches basic skills development in reading, writing mathematics and the sciences. It can engage the students in real life applications of academics.
- Technology is also helpful in availing professional development opportunities by the teachers. With the help of internet teachers can get access to different professional development opportunities such as software or internet workshops and graduate level courses in information technology.
- Technology helps in accomplishing the administrative tasks. Teachers may use technology tools for record keeping, scheduling, monitoring and reporting student's progress and managing daily practice.
- Technology also provides learning experiences that are less dangerous than the reality might be. A film or video tape of complicated laboratory experiment may give students insights into all aspects of the experiments while avoiding the possibility of accidents or explosions or the waste of materials.
- Information technology has numerous advantages in facilitating and motivating learning. Direct experiences through various media and technology make the subject clearer and the learner is motivated to learn.
- Technology may also provide learning experiences that are more pleasant and convenient than the traditional lecture, textbooks or classroom discussion.
- Representing and communicating complex problem situation is an important function of technology. Technology can incorporate graphics, video, animation, and other tools to create problems that can be explored repeatedly. Multimedia representations are easier to understand than problems presented as text. Technology helps in creating an environment that makes flexible exploration possible.
- Technology helps in summarizing and presenting the findings. Findings which are published on the World Wide Web are accessible by several people and the feedback is also easily available.
- Different types of educational software are designed and developed to help children or teenagers to learn specific subjects. Pre-school software, computer, simulators, and graphic software make learning easy.
- "Information Explosion" and "Population Explosion "both are bringing changes in the developed and developing countries and have posed critical problems for education. Both quantitative expansion as well as qualitative improvement of education can be facilitated and accelerated with the help of information technology.

Thus, it can be said that technology is playing important role and its use in education is helping to maximize learning experiences and making teaching learning process more effective and interesting.

Several Barriers of Using New Technologies

Several factors have been identified which have been supposed to be a hurdle in technology use. These factors are given below:

- **Shortage of trained teachers**

This is one of the crucial problems. There is emphasis on use of technology by the teachers. However, there is lack of trained teachers. Sometimes teachers are not interested in learning new things and sometimes they do not find suitable opportunities of technology training. Consequently, education system suffers.

- **Lack of proper software**

In India there is a wide diversity in language and dialects. Software is mainly available in English and not in different regional languages, it also prevents technology use.

- **Technophobia**

It is a fear towards the use of new technology. It is found that most of the teachers have some kind of fear, they hesitate or feel inadequately prepared to use any type of technology in teaching.

- **Lack of funds**

Funds are required for creation of infrastructure and for employing trained person. Due to lack of funds required facilities and material is not available in many schools and colleges, it results in less use of technology.

- **Time**

Due to tutorial and excessive administrative task teachers get less time for their professional growth. Besides, there are fewer computer and technological material available in the institution, students and teachers have less time available to develop and practice skills of using technology.

- **Infrastructure and lack of equipment**

There is lack of equipment in colleges as compared to the number of students. It becomes quite difficult to meet the demand of large student population. Sometimes poor maintenance of equipment makes this situation more difficult.

- **Lack of continuous updating and renewal of courses and training programs**

In the technological field there are continuous changes, new courses and latest software versions are available in short period of time, so continuous training and proficiency is needed to be up to date with the changing scenario. Institutions generally do not keep pace with the changing technology and provide obsolete information.

Thus, due to these barriers technology can neither be fully utilized nor it can take the education to its heights.

Suggestions for Promoting Use of Technology

Utilizing technology in education to its fullest potential is necessary to raise educational standards. There are various recommendations that can aid in encouraging the use of technology in order to accomplish this aim. The recommendations are provided below:

- Faculty members need to feel that effective use of technology is expected for all appropriate courses and situations. The attitude of teachers should change and management should make provisions for the proper use of technology that are available for improving quality of higher education.

- There should be support from the institution, as well as encouragement to use model teaching that takes advantage of technology. Administrative support can be in the form of funding, or in restructuring schedules.
- Not only the equipment, material, hardware, and software should be made available but also necessary provisions should be made for their effective utilization in the field of education.
- Proper monitoring and evaluation are necessary for ascertaining the extent of utilization and quality of training programs so that on the basis of their findings required improvement can be brought about in the process of production and utilization.
- Teachers must be adequately trained to use technology. Teachers' training and continuing education is needed. Teachers should know how to operate the technology and how to integrate it into the curriculum. Training sessions, workshops can be arranged for in-service and pre–service teachers.
- Technological resources must be sufficient and accessible. There should be accessibility of new technologies to both teachers and students. Technical assistance should be readily available so that use of technology should not be interrupted.
- Effective technology use requires long term planning and support. Such a plan should consider funding, installation, integration of equipment and ongoing management of the technology. The plan should also express a clear vision of the goals of technology integration.
- Technology should be integrated into the curricular and instructional framework, technology cannot exist in isolation. The individual student and his ongoing need within the learning process must also be carefully considered.
- Parents and community members can help in motivating the technology use in the neighborhood schools. All can help in providing technical support. Parents can use e-mail to facilitate communication with teachers and administration. It will promote technology use.
- Support from government is crucial in this regard. Adequate funding and appropriate policy making can help to assure that technology is accessible to all on an equal basis. Development of software and video programs that meet educational content standard should be ascertained by the government.

Conclusion

In the latest stage of the knowledge revolution, there are now several sources of knowledge rather than just one. In other terms, we might claim that the source of information has become decentralised. Overall, this affects how well the kids' learning skills are developing. The conventional roles of the instructor and the student may shift due to the speed of the technology revolution and the advent of a knowledge society. The instructor used to be the main source of information for the students. However, in the present day, instructors have a crucial role in how technology is embraced and used in the classroom and by students. In colleges, the instructor must play a vital and important managerial role with reference to ICT. The teacher takes on the job of manager of the educational setting, which is imaginative, engaging, challenging, and professionally fulfilling. In terms of personnel levels and the requirement for professional development, this enhanced responsibility for the teacher in a transformed learning environment has significant resource implications. Teachers must drastically and continuously change the way they teach so that they can set an example for their pupils in the importance of lifelong learning. However, the support and attitudes of teachers have a significant role in how they employ new technology in education in general and in teaching in particular. It has been stated that instructors are less willing to try integrating technology into their teaching and learning if they feel or perceive

that prospective computer applications won't meet their demands or those of their pupils. The attitudes of instructors toward computers are one of the elements that influence the effective usage of computers in the classroom. Various dimensions are made up of attitude. Perceived usefulness, computer comfort, training, gender, computer expertise, anxiety, confidence, and like are a few examples of these.

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