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INFORMATION TECHNOLOGY IN HIGHER EDUCATION WITH RESPECT TO SEVERAL BARRIERS OF USING NEW TECHNOLOGIES

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Abstract

At the dawn of the twenty first century, new and rapidly improving technologies are in the process of transforming higher education. Technology has the potential to revolutionize the traditional teaching and learning process. It can eliminate the barriers to education imposed by space and time and dramatically expand access to lifelong learning. Students no longer have to meet in the same place at the same time to learn together from an instructor. Fundamentally, modern technologies have the ability to change the conception of a higher education institution. No longer is a higher education institution necessarily a physical place with classrooms and residence halls where students come to pursue an advanced education. Distance education through satellite has made it possible to make access of education to most distant areas. In this regard The National Policy on Education, NPE 1986 has rightly emphasized on the function of educational technology that, "In order to avoid structural dualism, 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."Educational technology is aimed at maximizing learning experiences and making teaching learning more effective and efficient. In the recent years there has been an explosion of knowledge and population. To meet the challenges of quantity and quality, it has been felt that educational technology is helpful in dealing with this situation, which this paper has highlighted.

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

INTRODUCTION

Information technology is a growing field that offers relatively secure positions for those with solid technical skills and at least a bachelor's degree in an IT-related field. From support to engineering, there are several specializations that deal with the various facets of information technology. The field of information technology (IT) covers the design, administration and support of computer and telecommunications systems. Some of the positions in this field include database and network administrators, computer support specialists, computer scientists, software programmers and system analysts. The majority of career tracks in IT entail design and operational tasks related to computer hardware components, networks and software applications. Professionals in the IT field work with businesses and organizations to set up and support viable computer networks that will keep systems efficient and reliable. IT encompasses all hardware and software used in the storing, creation and accessing of information. Examples of

technologies that professionals work with are firewalls, databases, media storage devices, networks and the Internet.

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.

Though India has made tremendous progress in the filed of technology, the same technology is not properly being used in the teaching-learning process, Although efforts have been made to promote technology use, many schools and colleges are provided with technological equipment and facilities still all is not well. Due to some practical problems, these equipment and facilities are not being fully utilized and they have become a part of exhibition, consequently, old and conventional methods of teaching–learning remain in practice.

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? Further, there is lack of adequate user support, shortage of trained teachers, lack of time, infrastructure and continuous updating of training programs which hinder technology use. Higher education's investment in technology hardware is by itself, not sufficient to reap the full benefits of new technology advances. Thus, technology will neither reap its full potential nor revolutionize higher education if the barriers to its adoption are not resolved satisfactorily by individual institutions or the educational system as a whole.

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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

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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.

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- **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

To improve the quality of education it is needed to take the full advantage of technology in education. To achieve this goal there are some suggestions which can be helpful in promoting use of technology. The suggestions are given 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 new phase of the knowledge revolution the source of knowledge has shifted from a one source to different sources. In other words, we can say that there is a decentralization of the knowledge source. This has an overall impact on the development of learning abilities among the children. The pace of technological revolution and emergence of a knowledge society can change the traditional role of the teacher and the students. Traditionally, the teacher used to be the source of knowledge for the students. But in modern time teachers – with a changed and extended role – are central to the way technology is adopted and used at the classroom and student level. The teacher must play a central and crucial management role regarding ICT in colleges**.** The teacher becomes manager of the learning environment – a creative, interesting, demanding and professionally rewarding role. This expanded role for the teacher in a changed learning environment has considerable resource implications, in terms of staffing levels and professional development needs. Teachers need to modify their pedagogy dramatically and on a continuing basis, whereby they will become for their students role models for lifelong learning**.**

But the use of new technology by teacher in education, in general and in teaching, in particular, depends strongly upon their support and attitudes. It has been suggested that if teachers believed or perceived proposed computer programs as fulfilling neither their own or their students' needs, they are not likely to attempt to introduce technology into their teaching and learning. Among the factors that affect the successful use of computers in the classroom are teachers' attitudes towards computers. Attitude, in turn, constitutes various dimensions. Some examples of these are perceived usefulness, computer confidence, training, gender, knowledge about computers, anxiety, confidence, and liking.

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REFERENCES

Adolph, W. & LeBlanc, L. (1998). A revolution from above: The race for technology in foreign language. In J. A. Muyskenes, (Ed.), New ways of learning and teaching: Focus on technology and foreign language education (19-35). Boston: Heinle & Heinle publishers.

Abuhmaid, A. (2013). Teachers' perspective on Intel classmate PC as an instructional tool: How does the classmate PC affect students' cognitive, affective and psychomotor learning domains according to teachers Alhofaz academy. European Scientific Journal 9 (34), 148-159.

Akbaba, S., & Kurubacak, G. (1999). Teachers attitudes towards technology. Computers in the Social Studies,7(2), 833–836.

Al Mekhlafi, A. ,& Al Meqdadi, F. (2010). Teachers' perceptions of technology integration in the United Arab Emirates School Classrooms. Journal of Educational Technology & Society, 13(1), 165-175.

Albirini, A. (2004). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. Computers and Education, 47, 373 398.http://dx.doi.org/10.1016/j.compedu.2004.10.013

Albirini, A. (2006). Teachers' Attitudes toward information and communication technologies: The case of Syrian EFL teachers, Computers & Education, (47), 373-398.

Alsharhan, A. (2000). The effect of using the computer on the achievement of the first secondary class in physics, (Unpublished Doctoral Dissertation), King Saud university, Alriyadh: KSA.

Arnab,p.(2014). A Study on Attitudes Towards Using New Technologies among the Secondary School Teachers of Hooghly District in Relation to Their Gender, Strata, Subject Group and Experience. Indian Journal Of Applied Research, Volume : 4 | Issue : 11 | November 2014 | ISSN - 2249-555X

Bakr, S. (2011). Attitudes of Egyptian teachers towards computers. Contemporary Educational Technology, 2(4),308-318.

Bangou, F. (2003). A situated approach to knowledge construction related to technology-enhanced foreign language teaching and learning for preservice teachers in a large Midwestern master of education program, DAI-A, 65(20).

Baylor, A. L., & Ritchie, D. (2002). What factors facilitate teacher skill, teacher morale, and perceived student learning in technology-using classrooms? Computers & Education, 39(4), 395-414.

Becker, H. J., & Riel, M. M. (1999). Teacher professionalism, school work culture and the emergence of constructivist-compatible pedagogies. Center for Research on Information Technology and Organizations.

Bordbar, F. (2010). English teachers' attitudes toward computer-assisted language learning, International Journal of Language Studies, 4(3), 27-54.

Brandl, K. (2002). Integrated Internet-based reading materials into the foreign language teaching curriculum: From teacher- to student-centered approaches. Language Learning & Technology, 6(3), 87-107.

Braul, B. (2006). ESL teacher perceptions and attitudes toward using computer-assisted language learning (CALL): Recommendations for effective CALL practice, MAI, 44 (05) M.

Bruess, L. (2003). University ESL instructors' perceptions and use of computer technology in teaching, DAI-A, 64 (05).

Campbell, R., Kyriakides, L, Muijs, R., & Robinson, W. (2003). Differential teacher effectiveness: Towards a model for research and teacher appraisal. Oxford Review of Education, 29(3), 347-362. http://dx.doi.org/10.1080/03054980307440

Chen, J.-Q., & Chang, C. (2006). Using computers in early childhood classrooms: Teachers' attitudes, skills, and practices. Journal of Early Childhood Research, 4(2), 169-188. http://dx.doi.org/10.1177/1476718X06063535

Daniels J. S. (2002). Foreword. In Information and communication technology in education–A curriculum for schools and programme for teacher development (pp. 3-4). Paris: UNESCO.

Dexter, S., & Riedel, E. (2003). Why improving pre-service teacher educational technology preparation must go beyond the college walls. Journal of Teacher Education, 54(4), 334-346.

Dede, C. (Ed.). (1998). Learning with technology: The 1998 ASCD Yearbook. Alexandria, VA: Association for Supervision and Curriculum Development.

Dexter, S. L., Anderson, R. E., & Becker, H. J. (1999). Teacher's views of computers as catalysts for changes in their teaching practice. Journal of Research on Computing in Education, 31(3), 221-239.

Ely, D. P. (1982) The definition of educational technology: An emerging stability. Educational Considerations, 10(2), 2-4.

Erdogan, T. (2011). Turkish primary school teachers' perceptions of school culture regarding ICT integration. Educational Technology Research & Development, 59(3), 429-443.

Ertmer, P. A. (1999). Addressing first- and second-order barriers to change: Strategies for technology integration. Educational Technology Research and Development, 47(4), 47-61.

Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? Educational Technology Research Development, 53(4), 25-39.

Eynon, R. (2005). The use of the lute met in higher education: Academics' experiences of using ICTs for teaching and learning. Association of Special Libraries and Information Bureau Proceedings, 57(2), 168-180.

Kant, R. (2016). Relationship between attitude towards using new technologies and teaching effectiveness. International Journal of Research Studies in EducationalTechnology,5(2),61-69. ttps://www.researchgate.net/publication/306900457

Gagliardi, R. F. (2007). Pedagogical perceptions of teachers: The intersection of constructivism and technology use in the classroom, DAI-A, 68(03).

Garrison, M. J., & Bromley, H. (2004). Social contexts, defensive pedagogies and the (mis)uses of educational technology. Educational Policy, 18(4), 589-613. http://dx.doi.org/10.1177/0895904804266643

Georgina, D. A., & Hosford, C. C (2009). Higher education faculty perceptions on technology integration and training. Teaching and Teacher Education, 25(5), 690-696. http://dx.doi.org/10.1016/j.tate.2008.11.004

Gourav, M. (2016). Attitude of Teachers towards the use of Technology in Teaching. Educational Quest: An Int. J. of Education and Applied Social Sciences , 7 (2)

Gulbahar, Y. (2007). Technology planning: A roadmap to successful technology integration in schools. Computers & Education, 49(4), 943-956.

Hermans, R., Tondeur, J., van Braak, J., & Valacke, M. (2008). The impact of primary school teachers' educational beliefs on the classroom use of computers. Computer & Education, 51(4), 1499-1509.

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed (Group -I) Journal Volume 11, Iss 13, 2022

Kersaint, G., Horton, B., Stohl, H., & Garofalo, J. (2003). Technology beliefs and practices of mathematics education faculty. Journal of Technology and Teacher Education, 11(4), 549–577.

Kumar, R., & Kaur, A. (2005). Internet and its use in the engineering colleges of Punjab India. A case study. Webology, 2(4), 1–22.

Mcalister, M., Dunn, J., & Quinn, L. (2005). Student teachers' attitudes to and use of computers to teach mathematics in the primary classroom. Technology, Pedagogy and Education, 14(1), 77–106.

Oh, E., & French, R. (2007). Pre-service teachers' perceptions of an introductory instructional technology course. CALICO Journal, 24(2), 253-267.

Sang, G., Valcke, M., van Braak, J., &Tondeur, J. (2010). Student teachers thinking processes and ICT integration: Predictors of prospective teaching behaviour with educational technology. Computer & Education, 54, 103-112. http://dx.doi.org/10.1016/j.compedu.2009.07.010

Sepehr, H., & Harris, D. (1995). Teachers' use of software for pupils with specific learning difficulties. Journal of Computer Assisted Learning, 11, 64–71. http://dx.doi.org/10.1111/j.1365-2729.1995.tb00118.x

Shweta, A. (2012). Correlation study of teacher effectiveness and job satisfaction of higher secondary school teachers. Edutracks, 12(2), 13-16.

Suzan , D.E. , Adile, a.k. & Mahterem, D. (2010). Teachers' Views about Effective Use of Technology in Classrooms. Turkish Online Journal of Qualitative Inquiry, April 2012, 3(2)