Future Role of Information and Communication Technology (ICT) in Higher Education in Everywhere throughout the World

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ABSTRACT: This paper endeavours to highlight the part of ICT in advanced education for the 21st century. Specifically the paper has contended that ICTs have affected on instructive practice in training to date in very little ways however that the effect will become extensively in years to come and that ICT will turn into a solid specialist for change among numerous instructive practices. It is clear from the study that utilization of ICT in training is expanding quickly in different conditions of India. A standout amongst the most widely recognized issues of utilizing Information and Communication Technologies (ICTs) in training is to construct decisions with respect to innovative potential outcomes instead of instructive needs. In creating nations where advanced education is loaded with genuine difficulties at different levels, there is expanding weight to guarantee that innovative conceivable outcomes are seen with regards to instructive needs. The utilization of ICT in instruction fits more understudy focused learning settings and regularly this makes somewhere in the range of strains for a few instructors and understudies. Be that as it may, with the world moving quickly into advanced media and data, the part of ICT in instruction is turning out to be increasingly essential and this significance will proceed to develop and create in the 21st century. In this way, the paper proposes that ICT in advanced education is not a method for instructive improvement but rather likewise a method for financial improvement of the country.

KEYWORDS: ICT, Education, Socio-Economic Development

INTRODUCTION

Guaranteeing general administration and access to data and correspondence innovation is a top national target in numerous nations, regularly cherished in laws that administer the part. One of the unmistakable elements of individuals is their capacity to gain information, and what makes this learning a continually flourishing substance is man's capacity to "affect" this learning to others. Exchange of information, which is one of the establishments of learning, is among the most basic social accomplishments of individuals. Building solid associations with understudies is something that as often as possible clarifies why personnel takes joy in the test of working at a little college.

The idea of moving the conventional classroom of work areas, scratch pad, pencils, and chalkboard to an online gathering of PCs, programming, and the Internet scares numerous instructors who are acclimated to the vis-à-vis cooperation of the customary classroom. In the previous 10 years, online direction has turned out to be amazingly well known as is apparent in the ascent of online colleges, for example, University of Phoenix Online and Athabasca University (Canada), and on-grounds colleges offering online courses and degrees, for example, Harvard University and University of Toronto. For some understudies who think that its hard to come to grounds because of work, family obligations, wellbeing issues, and other time compels, online instruction is the main alternative. Progressions, principles, particulars and resulting selections have prompted significant development in the extensibility, interoperability and versatility of e-learning advances. E-learning is quick turning into a noteworthy type of learning.

PC interactive media offers perfect open doors for making and exhibiting outwardly enhanced learning situations. The most recent innovations connected with virtual reality will likewise assume a critical part in not very separation future. Administration foundations and instructors have endeavoured an expanded fuse of cooperative gathering work, critical thinking and basic leadership through innovation as a basic segment of instructional method. There is probably innovation based instruments can upgrade understudy's psychological execution and accomplishments if utilized properly, as per information learning and as a feature of a lucid instructive methodology. PC based frameworks have extraordinary potential for conveying educating and learning material. The fast improvement of Information and Communication Technology (ICT), especially the Internet, is a standout amongst the most entrancing marvels portraying the Information Age. ICT powers our entrance to data, empowers new types of correspondence, and serves numerous on-line administrations in the circles of trade, society, amusement and instruction. In the course of the most recent decade in the United Kingdom there has been development in backing for the utilization of innovation inside instructing and learning in Higher Education (HE). Specifically, since 1993 the Teaching and Learning Technology Program (TLTP) has advanced the making of innovation based materials for use over the HE division.

WHAT IS ICT?

Data and Communication Technologies (ICTs) are alluded to as the fluctuated accumulation of mechanical rigging and assets which are made utilization of to convey. They are likewise made use of to create, disperse, gather and regulate data. ICT is a power that has changed numerous parts of the way we live. Data and Communication Technologies comprise of the equipment, programming, systems, and media for gathering, stockpiling, preparing, transmission and presentation of data (voice, information, content, pictures), and related administrations. ICTs can be isolated into two parts, Information and Communication Infrastructure (ICI) which alludes to physical information transfers frameworks and systems (cell, show, link, satellite, postal) and the administrations that use those (Internet, voice, mail, radio, and TV), and Information Innovation (IT) that alludes to the equipment and programming of data accumulation, stockpiling, preparing, and presentation. The idea of a "Computerized Divide" has been around practically the length of ICT has been freely accessible. While customarily it has come to mean a division in the public eye, taking into account financial elements, this doesn't 'paint the whole picture' Introducing ICT as an instrument to bolster the instruction part has started generous discourses subsequent to the late 1990s. 10 years back the accentuation was on Technical and Vocational Education and Training and preparing educators. Amid the most recent couple of years an expanding number of worldwide improvement organizations have grasped the capability of ICT to bolster the training division. UNESCO has assumed a noteworthy part in leading the Education for All activity to tackle the capability of ICT. The generally subscribed Dakar Framework for Action perceives that, 'these advances (ICTs) have extraordinary potential for information spread, successful learning and the improvement of more proficient instruction administrations'. At the point when taking a gander at the reconciliation of ICT to bolster the accomplishment of instructive

destinations, it can be found that after just about 10 years of utilizing ICT to empower advancement, it is not yet completely incorporated being developed exercises and mindfulness raising is still required. The primary destinations of the paper are to assess the significance of ICT in advanced education and to examine the administration activities for improvement of ICT in advanced education.

ICT AND HIGHER EDUCATION

The significant instructing and learning challenges confronting advanced education spin around understudy an difference, which incorporates, amongst others, assorted qualities in understudies' scholarly readiness, dialect and tutoring foundation. Training is maybe the most key territory of mediation for the strengthening of young ladies and ladies in any general public and the utilization of data and correspondence innovations (ICTs) as an instructive device in the advancement of ladies' headway has tremendous potential. The use of ICTs as an instrument for viable improvement of learning, instructing and training administration covers the whole range of training from early adolescence advancement, essential, optional, tertiary, fundamental instruction and further instruction and preparing. Incorporating ICT in instructing and learning is high on the instructive change motivation. Regularly ICT is seen as imperative device to completely take an interest in the information society. ICTs should be seen as "a crucial part of showing's social toolbox in the twenty-first century, managing new and transformative models of improvement that augment the nature and compass of educator adapting wherever it happens" (Leach, 2005). For creating nations like Vietnam, ICT can additionally be seen as an approach to converge into a globalizing world. It is expected that ICT acquires progressive change instructing philosophies. The development lies not in essence in the presentation and utilization of ICT, however in its part as a patron towards an understudy focused type of instructing and learning. The Information and Communication Technology (ICT) educational programs gives a wide point of view on the way of innovation, how to utilize and apply an assortment of advances, and the effect of ICT on self and society. Innovation is about the ways things are done; the procedures, apparatuses and methods that modify human action. ICT is about the new courses in which individuals can impart, ask, settle on choices and tackle issues. It is the procedures, devices and strategies for:

1. gathering and distinguishing data
2. classifying and arranging
3. summarizing and integrating
4. analyzing and assessing
5. speculating and foreseeing

Improving and redesigning the nature of training and direction is a key concern, prevalently at the season of the spreading out and improvement of instruction. ICTs can enhance the nature of instruction in various courses: By increasing understudy energy and responsibility, by making conceivable the securing of crucial aptitudes and by enhancing educator preparing. ICTs are additionally apparatuses which empower and realize change which, when utilized appropriately, can support the movement a domain which is learner-focused. ICTs which can be as recordings, TV furthermore PC sight and sound programming, that unions sound, transcripts and colourful moving symbolism, can be made utilization of in order to make accessible invigorating, provocative and solid substance that will keep the understudy keen on the learning procedure. The radio then again through its intuitive projects uses tunes, sound impacts, adjustments, sarcastic comedies and supplementary accumulations of exhibitions to incite the understudies to listen and get attracted to the preparation that is being given. The utilization of online instructional method inside colleges and administration establishments is expanding. The presentation of the Wi-Fi framework too has prompted the development of howdy tech training framework, where availability and responsibility of topic is made promptly accessible to the understudies. The understudies can now ponder and fathom the related data at their own particular helpful time.

ICT IN RESEARCH

Uses of ICTs are especially intense and uncontroversial in advanced education's exploration capacity. Four regions are especially vital: The unfaltering increments in transfer speed and processing power accessible have made it conceivable to direct complex computations on substantial information sets. Correspondence joins make it feasible for exploration groups to be spread over the world rather than packed in a solitary organization. The blend of correspondences and advanced libraries is balancing access to scholarly assets, incredibly improving exploration potential outcomes for littler foundations and those outside the enormous urban areas. Exploiting these patterns to make new elements in exploration requires national arrangements for ICTs in advanced education and the foundation of joint data frameworks connecting all advanced education establishments. The utilization of ICTs in scholarly research has become relentlessly in the previous 10 to 15 years in both creating and created nations, in spite of the fact that there are wide varieties in use both inside also, amongst nations and locales. The most direct utilization of ICTs in exploration is in information preparing. The remarkable development in transfer speed and figuring power give chances to investigating/handling tremendous measures of information and performing complex calculations on them in a way that is to a great degree quick, precise and solid. PC information preparing not just liberates analysts from the lumbering errand of physically dissecting information yet all the more critically encourages speedy and precise investigation of gigantic measures of information from national specimens or even multi-national examples covering a huge number of respondents. Another imperative measurement of ICTs in examination is the utilization of online full content databases and online exploration libraries/virtual libraries which are the immediate result of the development in information transfers systems and innovation. These databases and libraries furnish scientists with online access to the substance of a huge number of books from real distributed houses, research reports, and companion looked into articles in electric diaries. ICT has likewise assumed a noteworthy part in college and industry association in Europe. The University of Minnesota's MBBNet (a web entrance of the state's virtual biomedical and bioscience group) as a team with Zurich Med Net (an online data source covering 400 colleges, organizations and establishment) offers connections to more than 1,300 associations in the territory of innovation exchange.

ICT IN TEACHING

Academics have taken to the use of computer in teaching much more readily than they adopted earlier audio-visual media. This is because the strength of computers is their power to manipulate words and symbols - which is at the heart of the academic endeavour. There is a trend to introduce eLearning or online learning both in courses taught on campus and in distance learning. Distance education and eLearning are not necessarily the same thing and can have very different cost structures. Whether eLearning improves quality or reduce cost depends on the particular circumstances. ICTs in general and eLearning in particular have reduced the barriers to entry to the higher education business. Countries and those aspiring to create new HEIs can learn from the failures of a number of virtual universities. They reveal that ICTs should be introduced in a systematic manner that brings clarity to the business model through cost-benefit analyses. ICT according to a number of commentators, enhance teaching, learning, and research, both from the constructivist and instructivist theories of learning. Behind this increasing faith in the role of technology in higher education however, lies implied acceptance of technology by various commentators, either as neutral and autonomous, neutral and human controlled, autonomous and value laden, or human controlled and value laden. In many countries, demand for higher education far outstrips supply and Governments and institutions are turning more and more to the use of ICTs to bridge the access gap. It is too early to say whether the role of ICTs in the teaching function of higher education is truly transformative, or whether it is simply a repackaging of previous pedagogy.

ICTs are a potentially powerful tool for extending educational opportunities, both formal and non-formal, to previously underserved constituencies—scattered and rural populations, groups traditionally excluded from education due to cultural or social reasons such as ethnic minorities,

girls and women, persons with disabilities, and the elderly, as well as all others who for reasons of cost or because of time constraints are unable to enroll on campus. ICTs make possible asynchronous learning, or learning characterized by a time lag between the delivery of instruction and its reception by learners. Online course materials, for example, may be accessed 24 hours a day, 7 days a week. Teachers and learners no longer have to rely solely on printed books and other materials in physical media housed in libraries (and available in limited quantities) for their educational needs. With the Internet and the World Wide Web, a wealth of learning materials in almost every subject and in a variety of media can now be accessed from anywhere at anytime of the day and by an unlimited number of people. Effectiveness, cost, equity, and sustainability are four broad intertwined issues which must be addressed when considering the overall impact of the use of ICTs in education. The educational effectiveness of ICTs depends on how they are used and for what purpose. And like any other educational tool or mode of educational delivery, ICTs do not work for everyone, everywhere in the same way.

The constitution of the United Nations Educational, Scientific and Cultural Organization (UNESCO) was adopted by 20 countries at the London Conference in November 1945 and entered into effect on 4 November 1946. The main objective of UNESCO is to contribute to peace and security in the world by promoting collaboration among nations through education, science, culture and communication in order to foster universal respect for justice, the rule of law, and the human rights and fundamental freedoms that are affirmed for the peoples of the world, without distinction of race, sex, language or religion, by the Charter of the United Nations. UNESCO's principles on ICT in education can be summarized as follows:

1. Old and new technologies need to be used in a balanced way. On-the-air and off-the-air radio/radio-cassette, television and offline video-assisted technologies are still considered valid and cost-effective modes of education delivery, as important as more interactive computer/Internet-based virtual education or online distance learning.
2. Meeting the international education goals by 2015 will require huge investments in teacher training institutions.
3. The demand for higher education cannot be met in both the developed and developing world without distance or virtual modes of learning.
4. Vocational training needs cannot be met without virtual classes, virtual laboratories, etc.
5. Educational goals cannot be met without gender sensitivity. Wherever possible, the proposed indicators will address the need to measure the gender gap.

Large Class

The growth of mass higher education has made large classes an endemic feature of several courses at higher education institutions. Large class sizes make it difficult for teachers to employ interactive teaching strategies or to gain insight into the difficulties experienced by students. Large classes pose problems for all students but students who are under-prepared are particularly affected. It is these contexts that provide useful opportunities for educational technologies.

Increasing access to education

ICTs are a prospectively prevailing tool for developing educational opportunities, both prescribed and non-prescribed.

1. **Whenever, wherever**: One important characteristic of ICTs is their capability to go beyond time and space. ICTs make it feasible to achieve learning which is exemplified by a time delay involving the deliverance of instruction and its receipt by students which is termed as asynchronous learning. Course materials can be retrieved and used 24 x 7. An example that can be discussed here is that of Hughes Net Global Educations Interactive Onsite Learning platform which strives to characterize the future level of education which is called as Real Time Interactive education.

2. **Access to reserved educational capital**: With the advent of the internet and the World Wide Web, it is now possible to gain access to an unlimited amount of data and educational materials. Data in almost any subject and in diverse forms of media can be accessed from any place at different times of the day and by an unrestricted number of individuals. This is predominantly

important for various educational institutions in the developing countries, and also for those educational institutions in developed countries that have restricted and outdated material in their libraries. ICTs, also enable access to the opinions of professionals, experts and researchers all over the world and allows one to be in direct communication with them. External factors influencing the inner life of higher education institutions, including the use of ICT, can generally be distinguished into: economic, social, cultural, and technological factors as well as the changing role of governmental policy. ICT is both driving and enabling the processes toward a knowledge-driven global economy. It allows higher education providers to accommodate the specific needs of students in terms of mode, pace, place and time of study and to cater to different and new target groups and (niche) markets both locally and globally.

BENEFITS AND CHALLENGES OF ICT

Tools are now available on the Internet to assist both teachers and students to manage writing assignments to detect and avoid the pitfalls of plagiarism and copyright violations. One of the great benefits of ICTs in teaching is that they can improve the quality and the quantity of educational provision. For this to happen however, they must be used appropriately. While using ICTs in teaching has some obvious benefits, ICTs also bring challenges. First is the high cost of acquiring, installing, operating, maintaining and replacing ICTs. While potentially of great importance, the integration of ICTs into teaching is still in its infancy. Introducing ICT systems for teaching in developing countries has a particularly high opportunity cost because installing them is usually more expensive in absolute terms than in industrialized countries whereas, in contrast, alternative investments (e.g., buildings) are relatively less costly. Using unlicensed software can be very problematic, not only legally but in the costs of maintenance, particularly if the pirated software varies in standard formats. Even though students can benefit immensely from well-produced learning resources, online teaching has its own unique challenges as not all faculties are ICT literate and can teach using ICT tools. The four most common mistakes in introducing ICTs into teaching are: i) installing learning technology without reviewing student needs and content availability; (ii) imposing technological systems from the top down without involving faculty and students; (iii) using inappropriate content from other regions of the world without customizing it appropriately; and (iv) producing low quality content that has poor instructional design and is not adapted to the technology in use. The other challenge faced is that in many developing nations the basic requirement of electricity and telephone networks is not available. Also many collages do not have proper rooms or buildings so as to accommodate the technology. Another challenge is that the teachers need to develop their own capacity so as to efficiently make use of the different ICTs in different situations. They should not be scared that ICTs would replace teachers English being the dominant language most of the online content is in English. This causes problems as in many nations the people are not conversant or comfortable with English. Skills development is another important area in which ICT could be used effectively. Attempts are being made to strengthen the ICT framework for Technical and Vocational Education (TVET). The emerging discourse on the role of skill development in addressing poverty and developmental issues indicates the potential role of ICT4D. ICT can play a major role in integrating skill development as a component of a poverty alleviation strategy.

CONCLUDING OBSERVATIONS

As move into the 21st century, many factors are bringing strong forces to bear on the adoption of ICTs in education and contemporary trends suggest will soon see large scale changes in the way education is planned and delivered as a consequence of the opportunities and affordances of ICT. It is believed that the use of ICT in education can increase access to learning opportunities. It can help to enhance the quality of education with advanced teaching methods, improve learning outcomes and enable reform or better management of education systems. Extrapolating current activities and practices, the continued use and development of ICTs within education will have a strong impact on: What is learned, how it is learned, when and where learning takes place, & who is learning and who is teaching. The continued and increased use of ICTs in education in years to come, will serve to increase the temporal and geographical opportunities that are currently

experienced. The integration of ICTs in higher education is inevitable. The very high demand for higher education has stimulated significant growth in both private and public provision. ICTs in the form of Management Information Systems are increasingly universal. The strength of computers in teaching is their power to manipulate words and symbols - which is at the heart of the academic endeavour. ICT has also led to the emergence of Open Educational Resources (OERs). The use of ICT creates an open environment which enables the storage and the reuse of information materials as also it enables the interface among the teachers as well as students. Apart from having enabling telecommunications and ICT policies, governments and higher education institutions will need to develop strategies for effective ICT and media deployment and sustainability.

REFERENCES

1. Bonn S. 2008. Transitioning from Traditional to Hybrid and Online Teaching, Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.34-35.

2. Core ICT indicators: Partnership on measuring ICT for development, retrieved from http://www.itu.int/ITU-D/ict/partnership/

3. Developing research-based learning using ICT in higher education curricula: The role of research and evaluation, retrieved from http://knowledge.cta.int/en/content/view/full/12690

4. Farahani A. J. 2008. E-learning: A New Paradigm in Education, Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, pp.25-26.

5. Guide to measuring Information and Communication Technologies (ICT) in education, UNESCO, retrieved from
http://www.uis.unesco.org/ev_en.php?ID=7856_201&ID2=DO_TOPIC

6. ICTs for Higher Education, Background paper from the Commonwealth of Learning, UNESCO World Conference on Higher Education, Paris, 5 to 8 July 2009, retrieved from http://unesdoc.unesco.org/images/0018/001832/183207e.pdf

7. Information and Communication Technology, retrieved from http://www.unctad.org/en/docs//iteipc20031_en.pdf

8. Isaacs S. IT's Hot for Girls! ICTs as an instrument in advancing girls' and women's capabilities in school education in Africa, retrieved from http://www.onlinewomeninpolitics.org/beijing12/ict_africa_ed.pdf

9. Jaffer S, Ng'ambi D. and Czerniewicz L. The role of ICTs in higher education in South Africa: One strategy for addressing teaching and learning challenges, International Journal of Education and Development using Information and Communication Technology (IJEDICT), 2007, Vol. 3, Issue 4, pp. 131-142, retrieved from http://www.vvob.be/vietnam/files/SubmissionGlobalLearnJP_v2.pdf

10. Jaffer S., Ng'ambi D. and Czerniewicz L. The role of ICTs in higher education in South Africa: One strategy for addressing teaching and learning challenges, International Journal of Education and Development using Information and Communication Technology (IJEDICT), 2007, Vol. 3, Issue 4, pp. 131-142, retrieved from http://www.uis.unesco.org/ev_en.php?ID=7856_201&ID2=DO_TOPIC

11. Mlitwa N. Global Perspectives on Higher Education and the Role of ICT, retrieved from http://eprints.rclis.org/bitstream/10760/6716/1/Global_Perspective_on_Higher_Education_and_the_Role_of_ICT%E2%80%A6.pdf

12. Nachmias R. , Mioduser D. & Shemla S. Information and Communication Technologies usage by students in an Israfli High School, retrieved from http://muse.tau.ac.il/ktl/ICT.pdf

13. Nadira Banu Kamal A.R.and Banu T. 'ICT in Higher Education – A Study', "Canadian Journal on Data, Information and Knowledge Engineering", Vol. 1, No. 1, April 2010, p.12.

14. National Policy on Information and Communication Technology (ICT) in School Education, retrieved from http://www.education.nic.in/secedu/ict.pdf

15. Nooriafshar M. 2008. The Role of Technology based Approaches in Globalizing Education, Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.53.

16. Oliver R. 2008. The Role of ICT in Higher Education for the 21st Century: ICT as a change agency for education, Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.13.

17. Peeraer J. & Petegem P. V. Factors Influencing Integration of ICT in Higher Education in Vietnam, retrieved from http://www.vvob.be/vietnam/files/SubmissionGlobalLearnJP_v2.pdf

18. People-ICT-Development, retrieved from http://www.google.co.in/search?q=People-ICT-Development&btnG=Search&hl=en&source=hp

19. Robertson C. and Whiting W. 2008. Weblogs: Building an Academic Family in Cyberspace', Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.133.

20. Shukre A. 2008. The Future of Online Education in India', Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.91.

21. Shukre S. 2008. The Future of Online Education in India, Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.94.

22. Smyth G. 2008. Wireless Technologies: Bridging the Digital Divide in Education, Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.179.

23. Upadhyay N. 2008, 'Role of Artificial Intelligence in Enhancing the E-Learning Domain', Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.117.

24. Varma A. 2008. ICT in the Field of Education', Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.10.

25. Varma A. 2008. ICT in the Field of Education', Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.3.

26. Varma A. 2008. ICT in the Field of Education', Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.9.

27. Varma A. 2008. ICT in the Field of Education', Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, pp.7-8.

28. Victoria L. Tinio, ICT in Education, retrieved from http://www.scribd.com/doc/2999093/ICT-in-Education-by-Victoria-L-Tinio

29. Wende M. V. D. 2002. The Role of US higher education in the global e-learning market, retrieved from http://cshe.berkeley.edu/publications/docs/ROP.WendePaper1.02.pdf

30. Zakaria Kasa at all (2008), Use of Webcasting Technology in Teaching Higher Education', Anil Varma (Ed), "Information and Communication Technology in Education", First edition, Icfai University Press, Hyderabad, p.104.