JOURNAL OF CRITICAL REVIEWS

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

The Role of Information and Communication Technology in Higher Education

Bubul Deka
Assistant Professor, Department of Education, Bahona College
Email: bubuldeka5@gmail.com

ABSTRACT

This article is dedicated to exploring the role of ICT in the twenty-first century in higher education. The article argues that educational practises having been influenced by ICTs thus far, but they'll have a much more significant impact in the future, and ICT will play a significant role in the transformation of many educational practices. It is apparent from the study that the implementation of information and communication technology in education is accelerating in India. Education decisions sometimes make selections based on technology capabilities instead of educational requirements in nations with academic problems in areas like higher education, where technology and educational requirements are seen in the context of one another. Using ICT in education allows for more student-centred learning situations, yet some instructors and students may not feel comfortable with the change. The world is quickly transitioning towards a digital media and information society, and ICT's function in education is increasing in importance and is expected to do so much more in the 21st century. The article further proposes that ICT is a method of educational advancement and a tool to advance socio-economic conditions for the nation.

KEYWORDS: ICT, Education, Socio-Economic Development

INTRODUCTION

Even though it is something that many countries work to do, many countries have laws in place to help make sure that the whole country is well connected to communication networks. Knowledge is a critical human attribute, yet it is also the most flexible, as it may be passed on through impact. One of the most outstanding achievements of the human race is the transfer of knowledge, a key component of learning. Building long-term relationships with students are something faculty members like since it explains why they feel energised by the difficulty of working at a small college. Many instructors are nervous about changing the traditional classroom with its familiar desk, notepad, pencil, and chalkboard to an online forum full of computers, software, and the internet. As shown by the rise of online universities, such as the University of Phoenix Online and Athabasca University (Canada), and Berra universities offering online courses and degrees, such as Harvard University and the penterUniversity of Toronto, online instruction has become increasingly popular in the past decade. Due to job, family commitments, health difficulties, and other time constraints, many students find themselves unable to attend university. As a result, online education is their only choice. A major development in the extensibility, interoperability, and scalability of e-learning systems has occurred due to advancements, standards, specifications, and subsequent adoptions. The

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

use of e-learning is becoming a dominant type of education. Students have several options for developing and presenting aesthetically stunning educational environments using computer multimedia. Advances in virtual reality will play a crucial part in shaping the world's future shortly. Education has sought to incorporate a greater emphasis on collaborative group work, problem-solving, and decision-making by integrating technology into teaching. Instructional techniques which employ technology can boost student performance and outcomes provided they are utilised correctly, in line with students' knowledge acquisition and as part of a well-constructed educational approach. Teaching and learning material may be efficiently delivered via computer-based solutions. The growth of ICT, especially the internet, is one of the most exciting things about the Information Age. The information and communication technologies (ICT) that are our primary means of accessing data, communicating, and purchasing goods, products, and services, may be used invarious domains, including culture, entertainment, and education. Over the last decade in the UK, there has been an increase in support for incorporating technology in Higher Education classrooms and lectures (HE). Teaching and Learning Technology Programme (TLTP) programmes are specifically designed to encourage technology-based resources for the higher education sector.

Information and Communication Technologies

It's common to hear the term ICT used to describe a diverse array of technical tools and resources utilised to communicate. Information may also be generated, distributed, collected, and stored with their help. ICT has wholly altered the way we live. The hardware, software, networks, and media used to gather, store, process, transmit, and present information (voice, data, text, pictures) are considered Information and Communication Technologies. ICTs consist of two separate parts: The Information and Communication Infrastructure (ICI) and the Information Technology (IT). Since ICT has been publicly available, the idea of a "Digital Divide" has been around almost as long. Socio-economic divisions are typically associated with it, although that doesn't tell the whole storey. Since the late 1990s, ICT has inspired much debate due to its introduction as a tool to assist the education sector. A decade ago, instructors were a focal point, with a heavy focus on vocational and technical education. A growing number of foreign development agencies have supported ICT use in education throughout the last few years. UNESCO has been an important driving force in putting ICT to use for the Education for All project. As the Dakar Framework for Action confirms, these technologies (ICTs) can improve learning and increase the quality of education services. There is still some work to be done on the part of utilising ICT to assist in attaining educational objectives, as it is apparent that after a decade of ICT usage to promote growth, it is not yet fully incorporated into development activities, and the need for increased awareness remains. The primary aims of the report are to gauge the relevance of information and communication technology (ICT) in higher education and to review the government's efforts to encourage ICT in higher education.

ICT AND HIGHER EDUCATION

Among the most excellent teaching and learning problems facing higher education is student diversity, covering academic readiness, language proficiency, and education background.

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

One of the most potent areas of intervention for women's empowerment is education, and ICTs might be used as an educational instrument to promote women's development. The whole education spectrum, from early childhood development through higher education and training, is covered by applying ICTs as a tool for school administration. Teaching and learning with ICT are of significant importance in educational transformation. Information and communication technology (ICT) is typically considered to be an invaluable instrument to be able to engage fully in the knowledge society. ICTs need to be viewed as "an integral part of the cultural toolset of education in the twenty-first century since they allow for (Leach, 2005). For nations like Vietnam, ICT has a dual role of both integrating with a globalising globe and putting their citizens in touch with one another. It is thought that ICT can bring about a revolution in teaching techniques. While introducing and using ICT in education is helpful, the real innovation is in applying technology to enable a student-centred learning environment. The ICT curriculum covers how to use and utilise various technologies and their influence on self and society. The technologies that modify human activity, such as the procedures, tools, and techniques people use, are all about technology. ICT (information and communication technology) involves new ways of communicating, questioning, making choices, and solving issues. It encompasses the procedures, resources, and strategies for:

1. gathering and identifying information
2. classifying and organising
3. summarising and synthesising
4. analysing and evaluating
5. speculating and predicting

Increasing the quality of education and instruction is essential as education expands and advances. Information and communication technologies (ICTs) can improve the quality of education in several ways: To make core skills more attainable and increase teacher training, it is imperative to increase student interest and dedication. ICTs may also be considered instruments that facilitate and provide change, effective when utilised appropriately to support a learning environment that favours the student.

Teaching aids that may include computer, video, and television media software and related technology that integrates sound, transcripts, and colourful moving visuals are needed to keep students interested in the learning process. The radio, however, stimulates pupils with its interactive programming that feature songs, sound effects, adaptations, sarcastic comedy, and different collections of performances. The internet is being used more and more in colleges and management schools. This Wi-Fi infrastructure has also helped encourage the spread of hi-tech education, which gives students better access to their course materials and more ways to stay in touch with their teachers. They may review and understand the relevant material whenever they choose.

ICT IN RESEARCH

ICTs are very strong and noncontroversial in the research role of higher education. As with any issues, four main aspects are critically important: Advances in computer speed and bandwidth have made it feasible to perform intricate computations on extensive data sets. Thanks to a network of communication linkages, international research teams may now be

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

established with a single institution as their base. By integrating communication and digital libraries, educational materials are becoming more available to everybody, including those outside the large cities and smaller universities. To ensure that higher education institutions take full advantage of emerging trends in research, countries need to adopt national policies for ICTs and construct unified information systems connecting all institutions. Over the past decade or so, the application of information and communication technologies (ICTs) in academic research has increased substantially in developing and developed nations. Still, the extent of utilisation has a broad range of differences within and across countries and regions. Research depends on the manipulation of data, which is one of the most direct uses of ICTs. As bandwidth and computer capacity has increased, the ability to analyse/process massive volumes of data and execute complicated computations on them rapidly, accurately, and reliable has also expanded. One of the significant benefits of using computers to analyse data is that it allows researchers to quickly and accurately analyse large quantities of data, even from large-scale surveys. The expansion of telecommunication networks and technology directly affects the growth of online full-text databases and online research libraries/virtual libraries, which are essential aspects of ICTs in research. Researchers now have internet access to thousands of books and peer-reviewed articles in several databases and libraries. ICT has also been crucial in the relationship between European universities and industry. In collaboration with Zurich Med Net (a web-based information source covering 400 universities, companies, and institutes), the University of Minnesota's MBBNet (a web portal of the state's virtual biomedical and diversity) offers links to more than 1,300 organisations in the technology transfer field.

ICT IN TEACHING

Compared to prior audio-visual media, academics have accepted the use of computers in teaching considerably more readily. Because of their ability to manipulate words and symbols, computers are excellent for scholarly pursuits. The increasing popularity of eLearning or online learning manifests itself in face-to-face learning and distance learning. Even while distance education and eLearning share certain similarities, their expense structures might vary widely. It depends on the individual conditions whether eLearning increases quality or reduces cost. The introduction of ICTs and eLearning has simplified access to the higher education market. Those seeking to build a new higher education institution (HEI) might draw lessons from the failures of several virtual institutions. They assert that ICTs should be included in the business model deliberately, clearly understanding costs and benefits.

Many experts say that ICT tools help boost teaching, learning, and research, both in the constructivist and learning theories. However, underneath this belief in technology's rising involvement in higher education, we find diverse commentators accepting technology as autonomous and value-neutral, neutral and human-controlled, or autonomous and value-laden. The shortage of educational opportunities is even more dramatic in many nations, and as a result, government and educational institutions are turning to technology to fill the void. It is too early to tell if ICTs have had a transformational impact on the teaching function of higher education or if they are just a repackaging of past pedagogy. A powerful tool for

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

expanding educational opportunities to previously underserved groups—rural populations, minorities, women, people with disabilities, and the elderly—is information and communication technologies (ICTs). ICTs facilitate asynchronous learning, a process in which information is transferred to learners before using it. For example, course materials are available any day or night, seven days a week. Teachers and students no longer need to rely on library resources, which are restricted in availability. Thanks to the Internet and the World Wide Web, individuals from all over the world may access a plethora of information in any subject and various media, all available 24/7.

When it comes to assessing the overall impact of ICTs in education, the effectiveness, cost, equality, and sustainability of ICT usage are four major interwoven problems that must be addressed. The efficacy of ICTs in the classroom depends on their use and the goal they are employed. ICTs do not function for everyone in every situation in the same manner, like any other educational instrument or delivery modality.

The UNESCO constitution was passed by 20 nations in London in November 1945 and went into force on November 4, 1946. UNESCO's goal is to promote world peace and security by collaborating with countries and encouraging education, science, culture, and communication to foster universal respect for justice, the rule of law, and human rights and fundamental freedoms, all of which are enshrined in the United Nations Charter. UNESCO's ICT education principles can be paraphrased 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 crucial as more interactive computer/Internet-based virtual education or online distance learning.
2. Meeting the international education goals by 2015 will require considerable investments in teacher training institutions.
3. The demand for higher education cannot be met in both the developed and developing the 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 proliferation of post-secondary schools has resulted in classrooms that are made up of hundreds of students. It is difficult for professors to engage pupils with interactive teaching methods or discover which kids have learning challenges because of the large class sizes. Students who are under-prepared in extensive courses are the most vulnerable. These circumstances allow instructional technology to do its best work.

BENEFITS AND CHALLENGES OF ICT

Help in finding writing assignments, avoiding plagiarism, and avoiding copyright infringement is now available online and may be used by both professors and students. One advantage of using ICTs in education is enhancing the quality and amount of instructional

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

materials available. However, they need to be used correctly for this to happen. While ICTs have some apparent benefits in the classroom, they also present problems. The first challenge is the high cost of ICT acquisition, installation, operation, maintenance, and replacement. Even while the use of information technology in education is the potential of tremendous relevance, it is still in its infancy. The opportunity cost of introducing ICT systems in developing nations is high because setting them up is often more expensive than in developed countries.

In contrast, the price of other expenditures (e.g., buildings) is lower. Using unauthorised software may be disastrous for your legal and financial security, especially if the pirated programme is not compatible with the standard file formats. Online teaching has its unique problems since not all faculty members are ICT educated and can use other technologies to teach. The following are the four most frequent errors of introducing new technologies into education: installing the tools without evaluating the needs and availability of the content; imposing systems from the top down without involving faculty and students; using range not suited to the region without customising it for the technology in use, and creating low-quality content that does not have the good instructional design.

In countries with emerging economies, the infrastructure for power and telecommunications is often inadequate. Also, many colleges do not have enough structures to house the equipment. They must also learn to master the various ICTs for maximum impact in the classroom. It should not be a source of fear for teachers who believe they are being replaced. Since English is the standard language, much of the material on the internet is in English. This issue arises because, in many countries, individuals aren't fluent in English. Another vital area where ICT may be put to good use is skill development. Efforts are being undertaken to improve the technological and vocational education system (TVET). The new debate on the significance of skills development in tackling poverty and development highlights ICT4D's potential role. The use of information and communication technology (ICT) can help buildpeople's skill sets in poverty reduction programmes.

CONCLUSION

The implementation of information and communication technologies (ICTs) in education is gaining ground, and it's a trend that is forecast to continue with the explosion of technology. ICT is thought to improve the availability of learning possibilities. It can assist in improving education via innovative teaching strategies, boost student learning outcomes, and facilitate improvements in or better administration of educational systems. Today's activities and practises forecast how ICTs will affect what, how, when, and where people learn and who is teaching and who is learning. The future expanded usage of ICTs in education will provide students with better options in time and place. The incorporation of technology into colleges is a certainty. There has been a considerable increase in private and public higher education because of solid demand. Management Information Systems (MIS) are becoming ubiquitous in the modern world. Computers are excellent educators because they are good at manipulating words and symbols, which is the essence of the academic endeavour. The use of ICT has also resulted in the creation of open educational resources (OERs). ICT helps establish an open environment where information items may be stored and reused, and

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

teachers and students can connect. Governments and higher education institutions must create ICT and media deployment plans and have supportive telecommunications and ICT policies.

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 fromhttp://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_Educa tion _and_the_Role_of_ICT%E2%80%A6.pdf
12. NachmiasR. ,Mioduser D. &Shemla S. Information and Communication

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

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=PeopleICT-Development&btnG=Search&hl=en&sou rce=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

ISSN- 2394-5125 VOL 07, ISSUE 02, 2020

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.