

GLOBALIZATION AND ROLE OF ICT IN ENHANCING THE EDUCATIONAL PRODUCTIVITY IN MODERN AGE

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ABSTRACT

Globalization is a process of interaction and integration among the people, companies and governments of different nations. It is a process driven by international trade and investment and also aided by Information Technology. This process effects on environment, culture, political system, economic development and prosperity, human physical well-being and on educational system in societies across the world. Globalization has underlined the need for reforms in the educational system with particular reference to the wider implementation of Information and Communication Technology (ICT) which ignites productivity in the educational system, research and development. The growing impact of ICT on globalization can be evidenced by the fact that it has led to a rapid application of recent scientific advances and innovation across various countries in the field of education. Thus, ICT plays a vital role in bringing about qualitative change in every aspects of educational system. The main goal of this paper is to examine the role of ICT in the field of education enhancing the process of globalization

Keywords : Globalization, Information and Communication Technology, Enhancement, Educational Productivity

INTRODUCTION

According to Plato the purpose of education is “Not to fill an empty vessel but to turn the eye of the soul towards light”. The progress of a nation in the world of today is more than ever dependent upon the quantity and quality of modern education received by people. From the point of view of education, as a human need, emphasis has to be placed on the technological development. Globalization of education leads to sharing of ‘knowledge’. For a nation like India sharing of

knowledge is very important because knowledge is universal and its creation and dissemination cannot be confined to national boundaries. The three dimensions of Globalization are the economic and financial dimension, the scientific & technological dimension and the cultural dimension.

In this 21st century, technological development is touching all the aspects of human life in the society. Teaching and learning have moved from instructive to constructivism. Constructivism demands the more effective use of Information and Communication Technology. Information and Communication Technology is basically an electronic based system of information transmission, reception, processing and retrieval, which has drastically changed the way we think, the way we live and the environment in which we live. According to Khan and his collaborators (Khan et.al, 2015), ICT is defined as “diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information”. Information and Communication Technology (ICT) is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliance with them such as video conferencing and distance learning. Information and Communication Technology (ICT) plays a major role in strengthening the three traditional branches making the mission of higher education i.e. teaching, research and service to the society. ICT has changed the style of functioning of educational system and its governance with the help of digital data, its storage, retrieval, manipulation and transmission. Generally, ICT works in three ways, as (i) communication and decision implementation, (ii) automating tedious task and (iii) supporting new and existing tasks and processes. The use of ICT in education can bring about an increase in productivity and efficiency in terms of global educational service delivery among nations of the world (Wordu, Woryi & Charley, 2021). But present 21st century’s education is student centric education. Students learn from multi sources and for this reason the use of ICT & Multimedia is very much essential in educational field and simultaneously teacher’s knowledge of ICT and Multimedia also are required.

Thus, nowadays the role of ICTs in education is becoming more and more important and it plays an important role in the process of globalization. ICT is defined as new information processing and information transmitting technologies that include computer related commodities and technologies such as broadcasting and wireless mobile telecommunications etc. Personal Computer (PC) that connects Internet has become a vital role for communication during the past few decades since its proliferation among the masses. In modern world, social networking websites like WhatsApp,

Twitter, and Facebook are some of the common examples of using instant messaging and video-conferencing (Jolly, 2019). It is observed that penetration of ICT is faster in developed nations rather than developing nations. Information and Communication Technology (ICT) seems to assume an explanatory role in energizing the coming together of world societies. More so, it aids in the acceleration of the interdependence of institutions, organs, processes and values. The ICT tools have been observed as a great influential tool in global educational system amidst the spread of the COVID-19 pandemic. The outbreak of COVID-19 brought about some attendant changes in teaching and learning in the global educational spectrum (Wordu, et. al., 2021).

Globalization has a multidimensional impact in the system of education. It has underlined the need for reforms in the educational system with particular reference to the wider implementation of ICT giving productivity dimension to the educational system and emphasis on research and development. Productivity is an economic concept and it is considered as the comparative analysis of input and outputs. In educational system the inputs are teachers, students, classroom materials, equipment of teaching, methods of teaching and outputs are quantity and quality of student learning. The proper integration of ICT with teaching-learning environment increases education as well as productivity.

The growing impact of ICT on globalization can be evidenced by the fact that it has led to a rapid application of recent scientific advances in products and processes, a high rate of innovation across various countries in the field of education. ICT has enabled us to monitor and evaluate what is learned, how it is learned, and when & where learning takes place. ICT provides internet based education to the students anytime and anywhere and these internet technologies enables innovative way of education. Thus, ICT plays a vital role in bringing about qualitative change in every aspects of education. But amidst the observable merits of ICT in global education, it is very regrettable to assert that the effective enforcement of ICT is still being confronted by some avoidable challenges which range from inadequate funding, lack of basic education, epileptic power supply, poor maintenance culture to the deployment of sub-standard ICT facilities. This, however, has become a major concern for many stakeholders in relation to the use of ICT in global education (Wordu, et. al., 2021). This article is therefore set to explore a symbiotic linkage and explain the nexus between ICT and globalization. To achieve this goal, ICT is used as a framework for analysing global interdependence through effective communication.

OBJECTIVES OF THE PRESENT STUDY

The objectives of the present study are as follows:

- (i) To study the concept of globalization and ICT
- (ii) To study of the impact of ICT on globalization
- (iii) To study the impact of globalization on education
- (iv) To investigate the innovative applications of ICT in education
- (v) To find out the techniques for which ICT promote educational productivity

METHODOLOGY

The study is descriptive in nature and therefore the information presented is based on secondary data. Secondary information has been collected from various documents such as books, newsletters, reports, magazines, journals, daily newspaper, WWW, as well as from existing literature to understand the role of ICT in enhancing educational productivity.

REVIEW OF LITERATURE

Samari and Atashak (2011) have explored the impact of ICT and e-learning on educational output using a sample of students from Peyam-e-Noor University from Iran and revealed a positive impact of ICT on educational output. Nisar et al. (2011) has explored the effect of ICT on education in Pakistan based on a sample of 429 respondents from five universities and colleges and revealed that ICT had a positive contribution to educational efficiency. Aristovnik (2012), focused on the effect of ICT on educational output in selected European Union (EU) and Organization for Economic Co-operation and Development (OECD) members through the data envelopment analysis technique and reached the conclusion that a significant impact of ICT on educational output exists in countries such as Finland, Norway, Belgium, and Korea. Anka (2019), explored the effect of globalization on education outcome in Nigeria and Pakistan and revealed that globalization positively affected school enrolment and learning opportunities in these countries. Kalsoom et al. (2020) explored the impact of globalization on higher education using a sample of 200 university teachers from Lahore universities and reached the conclusion that globalization raised competition in education, introduced high quality material for teaching and learning, increased collaboration etc. Wordu, et. al. (2021) have studied on Global Influence of Information and Communication Technology (ICT) on Education

Amidst Covid-19 Pandemic. They have adopted a literature survey to x-ray views of many authors on global influence of ICT on education on a wider scale. Thus, the study recommended that; heads of governments should come up with harmonized educational policies and legal frameworks for nation and states that will be predicated on increasing the level of accessibility and integration of educational practices among countries. Sart et. al. (2022) have performed a research work on the influence of information and communication technology (ICT), proxied by the ICT index and globalization index on educational attainment in the new EU Member States over the term of 2000–2018 by means of the causality and cointegration test. They found causality test points out a unilateral causality from ICT to educational attainment and a bidirectional causality between ICT and globalization. In other words, ICT has a significant effect on educational attainment, but globalization influences educational attainment by way of ICT in the short term. On the other hand, the cointegration test uncovers a positive effect of ICT on educational attainment at panel level and in Croatia, Czechia, Poland and Slovakia in the long term, while globalization had a positive effect on educational attainment in Bulgaria, Hungary, Lithuania and Poland. They found that cointegration test also supported those of the causality test and denoted that both ICT and globalization could be effective instruments for improving educational attainment, depending on countries' current human and physical capital and educational policies. Bhattacharjee and Deb (2016) have discussed in brief about the role of ICT in 21st Century's Teacher Education. They have mentioned that the knowledge of ICT very much important for pre-service teacher during their training programme. They have highlighted that Continuous and Comprehensive Evaluation (CCE) helps students as well as teachers to use more technology for making teaching learning more attractive for the betterment of our future generation. They suggested that every teacher must know the use of ICT in their subject areas to help the learners for learning more effectively. Fu (2013) has performed a critical literature review and their implications on ICT in Education. His review summarized the relevant research on the use of information and communication technology (ICT) in education. Specifically, it reviewed studies that have touched upon the merits of ICT integration in schools, barriers or challenges encountered in the use of ICT, factors influencing successful ICT integration, in-service and pre-service teachers' attitudes, perceptions, and confidence in using ICT as well as the importance of school culture in the use of ICT. His review discussed the gaps in the literature and the directions that future studies should be continued for further development.

APPLICATIONS OF ICT IN GLOBALIZING EDUCATION

i) Use of ICT in Teaching

With the present infrastructure, class size, availability of teachers, quality of teachers, training of teachers, etc., it is difficult to achieve all the objectives of teaching at school as well as higher education. The ICT can fill this gap because it can provide access to different sources of information as comprehensive as possible in different formats with different examples. ICT provides online interaction facility. Students and teachers can exchange their ideas and views, and get clarification on any topic from different experts, practitioners; etc. ICT provides variety in the presentation of content which helps learners in concentration, better understanding and long retention of information which is not possible otherwise.

ii) Use of ICT in Diagnostic Testing

The computer based diagnostic test helps the teacher as well as students in identifying the gray area of each and every student. Sansalwal (2005) developed computer based diagnostic testing in Mathematics and Sansalwal and Lulla (2007) developed Computer Based Diagnostic testing in chemistry. Both these were tried out in CBSE affiliated schools Indore. These can be put on the school website of the school and student can access it from home also. The student's progress can be monitored and his/her performance can be improved.

iii) Use of ICT in Remedial Teaching

Once the ICT is used for diagnosis purpose, the next step is to organize Remedial Teaching program. At this point, the ICT can be used for individual remedial teaching program. It may be in both online and offline.

iv) Use of ICT in Evaluation

ICT may be used in the evaluation. One such attempt was made by Sansanwal and Dahiya (2006) who developed computer based test in research methodology and statistics titled as Test your understanding: Research Methods and statistics. This type of test can be uploaded on the website of the institution for wider use. Both students and teachers can use it to assess their understanding of the subject. Student can instantaneously get the feedback about the status of their understanding.

v) Use of ICT in Psychological Testing

School and college teachers rarely use the research evidences regarding some correlates of

academic achievement. Many of them even do not know about such researches. Again school and colleges does not have a trained psychologist who can assess the students on some of the correlates of academic achievement. In this age of digital technology, different psychological test are available on the web site and students and teachers can use them whenever required.

vi) Use of ICT in Developing Virtual Laboratory

Laboratory helps in developing scientific temper. Virtual Laboratory can provide lots of freedom to students. The students can manipulate any attribute or variable related to the experiment and can see how it affects the outcome. Suppose a student wants to study the factors that can affect the focal length of a mirror. In real laboratory, the students cannot manipulate many variables that he thinks might be related. But virtual laboratory can provide lots of freedom to the student. Virtual laboratory can be developed using ICT.

vii) Use of ICT in Online Tutoring

It is a well-known fact that every student does not understand all subjects to the same extent. Some students find subjects, like, Mathematics, English, and Chemistry etc. difficult. Consequently, students do feel the need of academic support out of the school. In the digital technology the need of the students can be fulfilled through online tutoring. In online tutoring the students stay at home. He logs his tutors through the use of internet and software. Students ask the question and teacher replies it by writing on soft board or using power point presentation.

viii) Use of ICT in Developing Reasoning and Thinking

Web Based Instruction (WBI) can be developed with the help of ICT. WBI presents content in a structure format that allowing self-directed, self-paced instruction on any topic. WBI is media rich learning fully capable of evaluation, adaptation and remediation, all independent of computer platform. Sansanwal and Nawayot (2001) defined Web Based Instruction as a hypermedia based instructional programme that utilizes the attributes and resources of the WWW to create a meaningful leaning environment where learning is fostered and supported.

ix) Use of ICT in Developing Instructional Material

There are many teachers who are well known for the specific subjects. Their lectures should be digitalized and made available to all the users. It will enhance the quality of instruction in the class rooms. The teacher can use them in the class rooms and organize discussion after it. Sansanwal (2006) has developed digitalized lectures on research methodology and statistics and has used it for

teaching this subject at master's level.

INNOVATIVE APPLICATIONS OF ICT IN PROMOTING CREATIVE EDUCATIVE ENVIRONMENT

1. Web-Based Instruction

Web-based instruction refers to providing a learning environment that is mediated and supported via internet /intranet and connected to a computer with hyperlinks to resources outside the instructional domain. The instruction is designed so that the computer displays lesson in response to learner interactions. This instruction allows learners to view, retrieve and store information “any place, any time”. This instruction is a major sub-component of the term ‘e-learning’ with which instruction is delivered. Web based instruction provides the following advantages

- i) It moves from knowledge transmission to learner-controlled system.
- ii) Encourages active participation, knowledge construction.
- iii) Based on higher level thinking skills-analysis, synthesis and evaluation.
- iv) Promotes active learning.
- v) Allows group collaboration and cooperative learning.
- vi) Abstract concepts can be easily explained with the help of animation and graphics.
- vii) More effective at higher education and research level.
- viii) It reduces the barriers of time and space to learning.

2. Multimedia

Multimedia is a form of communication that combines different content forms such as text, audio, images, animations, or video into a single interactive presentation, in contrast to traditional mass media which features little to no interaction from users, such as printed material or audio recordings. Popular multimedia includes video podcasts, audio slideshows and animated videos. Multimedia can be recorded for playback on computers, laptops, smart phones, and other electronic devices, either on demand or in real time (streaming). In the early years of multimedia, the term “rich media” was synonymous with interactive multimedia. Over time, hypermedia extensions brought multimedia to the World Wide Web. Multimedia provides the following advantages.

- i) It enables students to represent information using several different media.
- ii) Hypermedia links allow students to organize information in meaningful ways.
- iii) It can take into account different learning styles.
- iv) It allows for self-pacing and discovery.
- v) It helps in development of higher order thinking skills.
- vi) It provides the students the flexibility of learning 'any-where,' 'any time'.
- vii) It helps in developing group and interpersonal skills.
- viii) It can bridge language barriers since audio is not the only means of communications.
- ix) It can simulate the student's mind and encourage learning through all senses because it can combine so many media.
- x) It saves time.
- xi) Multimedia database is most useful for narrating encyclopedia available in CD-ROM packs.

3. Facebook

Facebook is a social network which aims to enable people communicates with friends and exchange information. Facebook was founded by Mark Zuckerberg, a student at Harvard University, on 4th February, 2004. It enhances the ICT skills. Effective use of features and opportunities of Facebook supports instructors empowering the educational process with active learning, creativity, problem-solving, cooperation, and multifaceted interactions as well as students using and improving their academic performance, inquiry and alternative thinking skills in higher education. Facebook enhances the following advantages

- i) Teachers can upload their class notes, presentation, pictures in their class page.
- ii) Teachers can post announcements, instruction, notifications about assignments, tests, practical exams etc.
- iii) Teachers may arrange discussion session in Facebook page.
- iv) Teachers can link the learning website addresses and articles.
- v) Teachers may create a powerful network cycle with students, former students, professors and academic group.

4. Blended Learning

Blended Learning is an approach to learning and teaching which combines and aligns learning undertaken in face to face sessions with learning opportunities created online. Blended learning has the following advantages.

- i) Students usually receive more feedback, and more frequent feedback, from their instructors.
- ii) Students can acquire useful skills from using the Internet and computer technology.
- iii) A Blended approach can increase learning retention and greater retention leads to skills transfer and greater performance.
- iv) Learners also can take the responsibility for managing self-paced learning, encouraging them to take full ownership of building their knowledge and skills.

5. Flip Teaching

Flip teaching is a form of blended learning in which students learn new content online by watching video lectures usually at home and what used to be a homework is now done in class with teachers offering more personalized guidance and interaction with students, instead of lecturing. Flipped teaching often involves students watching lecture videos as homework. Flipped teaching is also known as flip teaching, reverse teaching and the inverted classroom. Flip teaching has the following advantages

- i) Students take more responsibility for their own learning and study core content either individually or in groups before class and then apply knowledge and skills to a range of activities using higher order thinking skills.
- ii) Teaching ‘one-to-many’ focuses more on facilitation and moderation than lecturing, though lecturing is still more important. Significant learning opportunities can be gained through facilitated active learning, engaging students, correcting misunderstandings, and providing timely feedback using a variety of pedagogical strategies.
- iii) There is a greater focus on concept exploration, meaning making and demonstration or application of knowledge in the ‘face-to-face’ sitting likely discussions or debates.

6. Teleconferencing

The word ‘tele’ means distance. The word conference means consultations, discussions. Through teleconferencing two or more places at a distance are connected so that they can hear or both see

and hear from each other. The interactions occur in real time. This means that the learners and the resource persons are present at the same time in different locations and are able to communicate with each other. Teleconferencing has the following advantages.

- i) Delivery of full courses tutoring, interaction with experts, project work and training can be provided to the students.
- ii) Introduction of short and new courses in screen development, vocational training, professional development and to address problems related to introduction of new curriculum and lack of teachers and facilities.
- iii) Remedial learning and off- hours can be provided.

3. Cloud Computing

Cloud computing is a type of computing that relies on sharing computing resources rather than having local servers or personal devices to handle application. The word Cloud is used as a metaphor for “the internet”, so the phrase cloud computing means “a type of internet, based computing”, where different services –such as servers, storage and applications are delivered to an organizations’ computers and devices through the internet. The term became popular after Amazon.com introduced the Elastic Compute Cloud in 2006. During teaching, teacher can store the materials in a cloud. It zaps the barriers in education by which everyone can have an equal education. Cloud computing has the following advantages

- i) Prints selection – it prints only the content what you need with one click.
- ii) Sound note for iPad is great for classes and meetings-lets you take notes, record audio, and share both via email.
- iii) Too noisy- an application to control the noise levels in the class.
- iv) Drop box- help teachers keep track of notes and plans by synching with their cloud.
- v) Class dojo – is a tool which help teachers to improve students’ behavior.
- vi) Edmodo- helps teachers to collaborate with their students outside of the classroom.
- vii) Ever note- it is an effective way to make lesson plan.
- viii) Teacher kit- an application that covers most teachers’ classroom management.

ix) Zoho meeting – parents can contact the institution members to know about their wards in the school.

8. Mobile Learning

Mobile learning (m-learning) is education via the Internet or network using personal mobile devices, such as tablets and smartphones to obtain learning materials through mobile apps, social interactions and online educational hubs. It is flexible, allowing students to access education anywhere, anytime.

Unlike other learning technologies, mobile learning is unique in that it can accommodate both formal and informal learning in collaborative or individual learning modes. With this technology learner would be able to provide problem-solving, guided instruction with analytical thinking, active participation and self-pacing in flexible learning environment. The advantages are as follows

- i) Students can learn anywhere, anytime leading to better course completion rates
- ii) Bite-Sized delivery leading to Faster Learning
- iii) Improves knowledge retention and Information Recall
- iv) Personalization leading to a Higher Rate of Engagement
- v) Responsive design leading to easy adoption and future proofing the content
- vi) Availability

CHALLENGES IN THE FIELD OF GLOBALIZING TECHNOLOGICAL EDUCATION

The challenges in the field of globalizing technological education for both teachers and students are as follows:

(A) For Teachers

- i) Insufficiency in the number of computer appliances or softwares.
- ii) inadequate ICT literacy and skills, the difficulty for integrating ICT into instruction and insufficient time for teachers.
- iii) lack of confidence, shortage of time for retraining and resistance to change for the instructors and students.
- iv) lack of effective training in solving technical problems and lack of access to resources for the students.

v) Lack of access, time, administrative support, resources and training.

vi) lackadaisical attitudes, pessimism, and such beliefs and practices that promote resistance to change.

(B) For Students

i) A major distraction

ii) The cyber bullying Trap

iii) A disconnected youth

iv) Low income group

v) Always changing the technology, which is difficult to learn

vi) Lack of motivation of using computer

vii) Language problem

viii) Limits of critical thinking and analytical thinking

ix) Limits of learning habit, oral skills and imaginations

x) Superficial understanding of the information

ROLES OF ICT IN GLOBALIZATION PROCESS

i) ICT reflects the convergence of communications – ability to deliver a variety of media and communication services

ii) ICT eroded the constraints of time and space.

iii) ICT allow people to share information and to communicate with each other at any time in any place, extend human interaction, allowing people who are dispersed in space and time to act in response to events taking place in distant locales.

CONCLUSION

Good teaching is not simply adding technology to the existing teaching and content domain. Rather the instruction of ICT causes the representation of new concept and requires developing sensitivity to the dynamic transaction relationship between content, pedagogy and technology. The modern world is not only confined to modern science and technology, but it is also marching towards the process of liberalization, privatization and globalization. As a consequence, relations have been established among science and liberalization.

As a result of globalization, we could achieve international standards in education. Thus, the era of globalization has tremendous concomitant implications for knowledge, education and learning.

ICT can be viewed as an effective vehicle to transform classroom learning into learning communities with students, teachers and community members since all of them play a vital role in this education system.

This is intended to help policymakers in developing countries to define a framework for the appropriate and effective use of ICTs in their educational systems by first providing a brief overview of the potential benefits of ICT use in education and the ways by which different ICTs have been used in Education. Moreover, it addresses the four broad issues in the use of ICTs in education, effectiveness, cost, equity and the sustainability.

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