



Application of ICT in Educational Enterprises and Assessment

Ankana Sarkar¹, Debankita Ray² and Sharmistha Basu³

Student, Department of Computer Science and Engineering, Narula Institute of Technology, Kolkata, India^{1,2}

Faculty, Department of Basic Science and Humanities, Narula Institute of Technology, Kolkata, India³

Abstract: ICT, also known as Information and Communications Technology, is the infrastructure that helps to smoothly achieve communication among people and organizations in the modern digital world. Generally, it includes applications, devices, systems, and networking components that allows modern computing such as wireless networks, cell phones, computers, radio, software, hardware, video-conferencing, social networking, interactive digital content, digital TVs and robots etc. Today ICT is utilized throughout the globe. They are mainly invented for reducing the physical and mental human workload. The tools of ICT such as satellite communication devices, telecommunications, computers, and data have become critical for the systematic working of various professions (such as E-Commerce, E-governance, Banking, Agriculture, Education, Medicine, Defense, Transport, etc.). It is nearly impossible to imagine the functioning of organizations without such devices. As we know, Covid-19 pandemic came with huge restrictions which also came with hindrance in normal workflow in every sector including education but fortunately ICT devices provide us with online working efficiency which enables students to gather information through various websites and applications. During COVID-19 enormous amount of student sought help from many online platforms such as YouTube, Google and many more, even teachers took online classes on Google Meet, Zoom etc. ICT has the potential of expanding the access to training and learning through online courses and the use of various apps. ICT permits self-study and learning through different tools such as projects, laptops, mobiles, computer etc. as a result of which, the educational enterprise has become more productive and helpful. ICT helps gaining more knowledge about various fields and enhancing tutoring capability via e-mail, chalk session, e-learning, web-based learning including internet, intranet, extranet, CD, TV, audio-videotape. Today internet is available at a very affordable price which enables Integrated Learning Modules, podcast, Wikis, Enhancement of Browsers, E-learning, M-learning, U-learning to rapidly progress in teaching learning processes. So, the implement of ICT is becoming mandatory day by day in the world at large and also in educational fields for application-based learning.

Keywords: Infrastructure, Telecommunications, COVID-19, E-Learning, Integrated Learning modules.

I. INTRODUCTION

ICT stands for information and communications technology and is an infrastructure that helps to smoothly achieve communications among people and organizations. It is generally accepted to mean all devices, networking components, applications and systems that enables modern computing. ICT includes more than its list of components, also containing the application of the same. The need of ICT and its popularity has increased in the post-pandemic era when almost everything was done in online mode through the confinements of our homes. It incorporates both the internet-enabled sphere as well as the mobile one powered by wireless networks. Components includes both outdated technologies, such as landline telephones, radio and television broadcast, and the pioneering pieces such as artificial intelligence and robotics.

The list of ICT components is exhaustive, and it continues to grow and evolve. It is sometimes synonymously used with IT (information technology), although it generally represents a broader, more comprehensive list of all components related to computer and digital technologies which help connect people and organizations.

II. SIGNIFICANCE OF ICT

ICT enables self-paced learning, through various tools such as assignments, computer etc. as a result of which this teaching learning enterprise has becomes more productive and meaningful. It enhances a teacher's capacity and ability and promotes active learning, sharing of ideas, discussions and provides immediate feedback. The digitization of data, the expanding use of high-speed internet and growing global network together has opened up new opportunities for students to make progress in their academics as well as building up their career paths.

1. E-learning or Online Learning: The presence of ICT in education allows for new ways of learning for students and teachers. E-learning or online learning is widely consumed. This does not only open opportunities for schools to ensure that students have access to curriculum materials whilst in the classroom but also allows them to ensure students outside the classroom can learn and interact.



2. ICT promotes higher-order thinking skills: Key skills for the advancing era includes evaluating, planning, monitoring, and reflecting etc. to name a few. The effective use of ICT in education demands skills such as explaining and justifying the use of ICT in producing solutions to problems. Students are provided with a platform to discuss, test, and conjecture the various strategies that they will use.

3. ICT enhances subject learning: It is well known these days that the use of ICT in education adds a lot of value to key learning areas like literacy and numeracy.

4. ICT encourages collaboration: ICT naturally brings students together where they can talk and discuss what they are doing for their work and this in turn, opens up avenues for communication thus leading to language development.

5. ICT in education improves engagement and knowledge retention: When ICT is integrated into lessons, students become more engaged in their work. This is because technology provides different opportunities to make it more fun and enjoyable in terms of teaching the same things in different ways. As a consequence of this increased engagement, it is said that they will be able to retain knowledge more effectively and efficiently.

In today's digital age, it's more important than ever for teachers to have a solid understanding and judgement about how to use ICT skills appropriately. Not only can ICT training help teachers stay up-to-date with the latest technological advancements, but it can also benefit their students in numerous of ways. One of the biggest benefits of ICT training for teachers is the improvement in the teaching and learning experience. Overall, ICT training for teachers can have a positive impact on the learning experience of students and help them achieve their academic goals.

III. THE FOUR STATED CLAIMS OF ICT

1. To develop a digital content supply network for education: One of the most significant benefits of ICT training for teachers is the increased engagement and participation of students in the classroom. With the use of technology, teachers can create more interactive and dynamic lessons that capture the attention of students and keep them engaged throughout the class. This can lead to better retention of information and improved academic performance for students. Additionally, technology can provide opportunities for students to collaborate and communicate with each other, which can enhance their social and communication skills.

2. Connect education to a billion digital resources in future: With the use of technology, teachers can create more interactive and engaging lessons that cater to different learning styles. This can lead to better retention of information and improved academic performance for students. Additionally, ICT training can help teachers stay up-to-date with the latest teaching methods and tools, allowing them to provide a more effective and efficient learning experience for their students.

3. Help educators and educational institutions worldwide to collaborate: Using ICT, teachers can communicate with their students through email, messaging apps and online discussion forums. This helps to create a more interactive and engaging learning environment, where students can ask questions and receive feedback in real time.

4. Build local digital content publishing capacity worldwide: ICT enables publishers to create, edit, store and distribute digital content in various formats such as e-books, ejournals and online magazines. The content published is accessible to a wider range of audience within a short range of time.

IV. SWITCHING TO ICT

ICT has the capacity to store, retrieve and process e-content both fast and accurate. It has the potential to transcend barrier and space. Integrating ICT will make education more accessible and affordable, while also improving the quality of services even to those students in the remotest parts of our country. By utilizing technology such as interactive whiteboards, collaborative software, and other digital resources, teachers can create engaging and stimulating experiences for students. Additionally, complex topics are made easier to understand by providing visuals and audio feedback.

One of the most commonly cited reasons for using ICTs in the education field has been to better prepare the current generation of students for a workplace where ICTs, particularly computers, the Internet and related technologies are dominating. Technological literacy, or the ability to use ICTs effectively and efficiently is thus seen as representing a competitive edge in an increasingly globalizing job market.



Well-paying jobs in the new global economy includes skills such as digital age literacy, inventive thinking, higher-order thinking, sound reasoning, effective communication and high productivity. The potential of ICTs is to promote the acquisition of these skills is tied to its use as a tool for raising educational quality, including promoting the shift to a learner-centered environment. Hence, the present high tech and competitive society will sustain only through the knowledge of ICT and its implementations.

V. ICT ON HIGH DEMAND

In the past educational institutions have provided little choice for students in terms of the method and manner in which programs have been delivered. Students have typically been forced to accept what has been delivered and institutions have tended to be quite staid and traditional in terms of the delivery of their programs. ICT applications provide many options and choices and many institutions are now creating competitive edges for themselves through the choices they are offering students. These choices extend from when students can choose to learn to where they learn. Via online teaching teachers are now capable of gaining knowledge anytime anywhere. ICT has shown us such amazing results such as:

- Improving teaching and learning quality.
- Promoting collaborative learning in a distance learning environment via PowerPoint, animation, graphics enhance learning.
- Supporting student-centered and self-directed learning.

Now coming to an elaboration of the above points.

a. Any place learning: In many instances traditional classroom learning has given way to learning in work-based settings with students able to access courses and programs from their workplace. The advantages of education and training at the point of need relate not only to convenience but include cost savings associated with travel and time away from work, and also situation and application of the learning activities within relevant and meaningful contexts.

- The communications capabilities of modern technologies provide opportunities for many learners to enrol in courses offered by external institutions rather than those situated locally. These opportunities provide such advantages as extended course offerings and eclectic class cohorts comprised of students of differing backgrounds, cultures and perspectives.

- The freedoms of choice provided by programs that can be accessed at any place are also supporting the delivery of programs with units and courses from a variety of institutions. There are now countless ways for students completing undergraduate degrees for example, to study units for a single degree, through a number of different institutions, an activity that provides considerable diversity and choice for students in the programs they complete

b. Expanding the number of teachers: In the past, the role of teacher in an educational institution was a role given to only highly qualified people. With technology-facilitated learning, there are now opportunities to extend the teaching pool beyond this specialist set to include many more people. The changing role of the teacher has seen increased opportunities for others to participate in the process including workplace trainers, mentors, specialists from the workplace and others. Through the affordances and capabilities of technology, today we have a much-expanded pool of teachers with varying roles able to provide support for learners in a variety of flexible settings. This trend seems set to continue and to grow with new ICT developments and applications. And within this changed pool of teachers will come changed responsibilities and skill sets for future teaching involving high levels of ICT and the need for more facilitative than didactic teaching roles

c. Student-centered learning: Technology has the capacity to promote and encourage the transformation of education from every teacher directed enterprise to one which supports more student-centered models. Evidence of this today is manifested in:

- The proliferation of capability, competency and outcomes focused curricula
- Moves towards problem-based learning
- Increased use of the Web as an information source, Internet users are able to choose the experts from whom they will learn the use of ICT in educational settings, by itself acts as a catalyst for change in this domain.

ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources.



VI. ICT IN DAILY LIFE

The effect and benefits of technology should, obviously, not be overlooked on our lives today. The 21st century is called the age of science and technology, particularly with the advancements and advances in new technology over the last few decades. ICT has become an integral part of everyday for many people's life.

It increases its importance in people's lives and it is expected that this trend will continue, to the extent that ICT literacy will become a functional requirement for people's work, social, and personal lives.

Widespread internet use on laptops, tablets, smartphones, iPods, and other devices has provided us unrestricted access to diverse entertainment channels.

Remember the days when people had to wait on television for the Friday night broadcast or special telecast! Now you can easily and conveniently download and buy music, movies, TV shows, and games. ICT has a great impact in our daily lives. For example, we can read our local newspaper using the online newspaper.

Another example is we still can get connected with our family, relatives, or colleagues even if we are abroad by using the electronic mail, yahoo messenger, call conference, or video conference.

Some everyday uses of ICT are as follows:

- Blogging which provide information along with videos and photographs.
- Podcasts allow one to access them by directly downloading.
- Wikipedia offers further links on a topic with history and recent changes.
- Web-browsers are a must go-to for any learning problems.
- Using smartphones, we can get news from the web.
- Communication throughout the globe
- Agriculture
- Greenhouse Gas Emissions
- GIS (geographic information system)

VII. FUTURE OF ICT

ICT is a powerful tool that can be used to improve education. By embracing ICT and leveraging its potential, educational institutions can enhance teaching methodologies, improve learning outcomes, and prepare students for the future. Since the advantages of this new technology that we enjoy today can at times seem unimaginable, and surreal.

ICT is one of the economic development pillars to gain national competitive advantage. It can improve the quality of human life because it can be used as a learning and education media, the mass communication media in promoting and campaigning practical and important issues, such as the health and social area.

We can already predict how ICT will influence our future greatly. Changes in education industry has already started. Some are as follows:

1. Usage of e-learning has made transformative progress in education.
2. Delivery of content through e-learning is via electronic media.
3. From virtual worlds, artificial intelligence and much more, ICT empowers both students and teachers.



VIII. CONCLUSION

ICT in today's world has greatly influenced many good things and bad things as well. So, the usage of ICT in a wise way is all in our hands. With a brief discussion on ICT we can hence see the merits of usage of ICT as stated below:

- Systematic, quick, affordable.
- Fast computing.
- High speed communication.
- Student friendly.
- Distance Learning.
- Self-paced Learning.
- Modern and Efficient.

So, in the Education industry usage of ICT has been highly beneficial and will be in the upcoming time too. Information Communication Technology helps people many ways. Communication technology helps people easily communicate to other and makes life more convenient. Although communication brings a lot of benefits. So, people must responsible while using the communication technology properly.

REFERENCES

- [1]. <https://blog.teachmint.com/role-of-ict-in-education/>
- [2]. <https://www.ictesolutions.com.au/blog/why-schools-should-invest-in-ict/>
- [3]. https://www.researchgate.net/profile/Satish-Patel-10/publication/325443142_SCOPE_OF_ICT_IN_FUTURE_EDUCATION/links//SCOPE-OF-ICT-IN-FUTURE-EDUCATION.pdf
- [4]. <https://digitallearning.eletsonline.com/2017/11/ict-defining-the-role-of-future-education-in-india/>
- [5]. <https://monichatterjee.medium.com/importance-of-ict-in-education-and-teaching-learning-process-f794225c1c2e>
- [6]. <https://www.computeam.co.uk/videos-and-blog/article/what-are-the-key-advantages-of-ict-in-education>