# ICT And Quality Of Education In The 21st Century

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Abstract

Information and Communication Technology has become a commonplace entity in all aspects of life. It has brought revolution in various spheres of society at the global level. It has become an essential and unconditional part of the education system, also. The 21st century is an era of modern technological growth and internet service. From womb to death, our life is based on technology and now the digital media is one of the most popular media in human life. Day by day, our education system is being formalized and systematized with the benefits of ICT. It is now an essential component of the educational process and teaching learning activities. The development of ICT has given a new dimension to the pedagogy, evaluation, and self-learning. The quality of education has automatically grown with the use of the WWW, by providing global knowledge within a nanosecond. The use of ICT in education has led to more and more student-centric learning settings and great assistance for teachers, also. In the period of knowledge explosion, it is urgent to accept the rapid growth of the technological aspect. In these circumstances, ICT plays a major role in making education lively, enthusiastic, motivating, creative, and self-paced. This paper will highlight the above-mentioned benefits of ICT on quality Education and pedagogical explosion and self-learning.
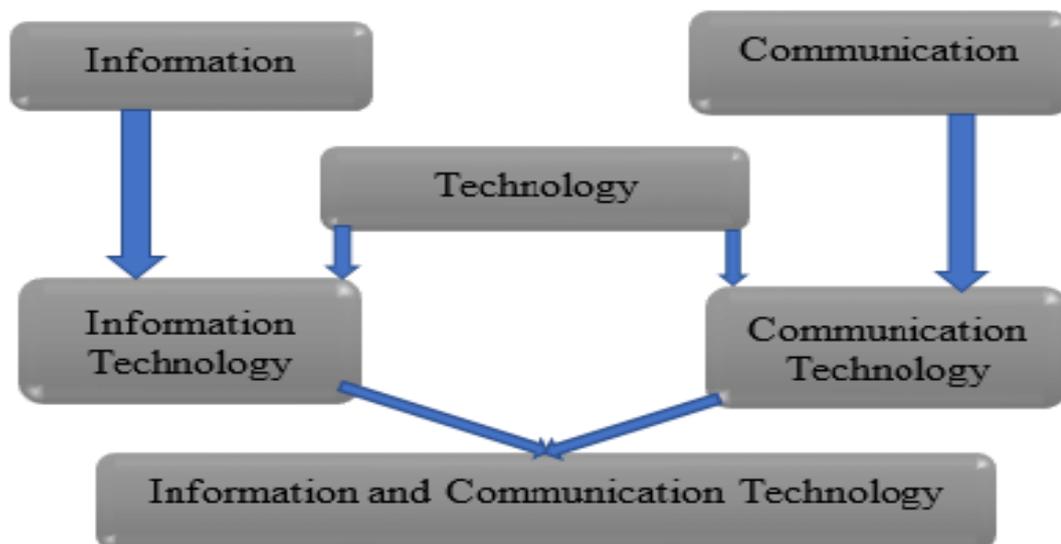
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## ICT MEANING

The term **'Information"** refers to any communication or representation of knowledge, such as facts, data, or opinions in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual forms. **Technology-** refers to the practical form of scientific knowledge or the science of application of knowledge to practical. Technology can be used for the creation and communication of information. The term **'Information and Communication Technology ' (ICT)** includes various forms of technologies that are used to create, display, store, process, transmit, share, or exchange information by electronic means (UNESCO 2007). It is such a discipline that deals with the creation and communication of information. Radio, television, and print media (newspapers, Books, Magazines, etc.) are the popular technologies used for communication. The digital revolution has transformed the way these traditional technological functions. For example, Analog television has become digital television, printed newspapers are now also in electronic versions, along with traditional radio, and we also have online radio. Now Information and communications technology **(ICT)** is an extensional term for information technology (IT) that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage and audiovisual, that enable users to access, store, transmit, understand and manipulate information.(Wikipedia,2023).

Characteristics of Information Technology:

1. It is a systematic combination of Acquisition, storage, manipulation, management, transmission, or reception of data or information.
2. Real-time access to information.
3. Easy availability of updated data.
4. Connecting globally.
5. Wider range of communication media.



https://www.researchgate.net/profile/Nannim-Fadip/publication/333429534/figure/fig1/AS:763535911038976@1559052555354/The-Components-of-ICT.ppm

**Quality Education:**

Quality Education- UNESCO in 2012 unfold the concept of Quality Education in SDG-4 in where whole child is in focused— the social, emotional, mental, physical, and cognitive development of each student regardless of gender, race, ethnicity, socioeconomic status, or geographic location. Based on the pillars of providing excellent teaching; utilizing and providing access to developmentally appropriate and effective learning tools; and establishing supportive learning environments, a quality education provides the outcomes needed for individuals, communities, and societies to prosper. In 2012, the UN's former Secretary-General Ban Ki-moon said:

*"Education is about more than literacy and numeracy — it is also about citizenry. Education must fully assume its central role in helping people to forge more just, peaceful and tolerant societies."*

The UN has outlined several targets within their larger education-related SDG that help us to set a standard of quality.

- Building relevant skills for financial success.
- Eliminating discrimination in education.
- Universal literacy and numeracy.
- Qualified teachers.
- Inclusive and safe schools.

**Teaching and Learning Pedagogical Approaches:**

For qualitative Education, Teaching and Learning methodology or learning pedagogy is very important. According to Merriam-Webster, the term 'Pedagogy' refers to the "art, science, or profession of teaching." This broad definition covers various aspects of teaching, and there are many moving parts to pedagogy that include teaching styles, feedback, and assessment. The term pedagogy boils down to the study of different teaching methods. Teaching pedagogy, or techniques of instruction, can take a low-tech or high-tech approach and can be student- or teacher-cantered. Pedagogy helps to understand and assist each student which requires the various ways in which students absorb information. Since no two students are alike, teachers can better tailor their education by learning how each student learns best. Now the question at hand is how to maintain the quality of education? As we know the quality education depends on the development and successful implementation of information technology in several provision such as enlarging the motivation of learner, enrichment of basic skills and increasing teacher training in technology. Information communication technology serving as curriculum/subject transformation tool, it is used properly to create an environment with learner cantered. Information and communication technologies are used by the teachers to instruct the students to know and access the new pedagogy (Saravanakumar, 2015, P.123) **[2].** The quality of learning cannot be achieved without quality of teaching. ICT gives the supreme opportunity for the teacher and the learner by imbibing modern technological demonstration and software tools (*Boyarsky, K. (2021)* such as –

I. **Collaborative Suites-Google's G Suite** includes a number of well-known digital transformation tools, like Gmail, Docs, Drive, and Calendar. Your employees can share information in real-time and have access to a complete set of tools for improved communication and collaboration at work.

II. **Communication Tools**-Digital Communication Platforms centralize all important information and provide a single source of truth for corporate communications. With tools like **Slack or Microsoft Teams**, you can create dedicated work groups to ensure that everyone involved in a project or a team is well informed.

III. Google Classroom

IV. Video conferencing platform like, Zoom and Skype.

V. Smart video cameras like the Meeting Owl are 360° webcams that pivot to follow whoever is speaking.

VI. Asynchronous learning tools is learning sessions that are completed on the students' own time, at their own pace, while being supported by remote asynchronous tools.

VII. Synchronous learning is any learning session that happens in real-time, with immediate interactions between students and their peers or their teachers- live virtual webinars, virtual classrooms, instant messaging, and audio collaboration.

VIII. Online textbooks like Cengage and Chegg. [3]

**Eliza Frakes, (8th September ,2022)** a freelance copy writer illustrates five main software used in teaching learning is like-

➢ **Learning management systems** serve as a central hub for teachers to store and share documents with fellow teachers, families, or their educational institutions.

➢ **Student information systems,** or SIS tools, collect and store individual students' data, so teachers can track student progress and measure student performance.

➢ **Classroom management software** helps teachers create lesson plans and boost classroom engagement

➢ **Assessment software** allows teachers to create and grade exams online

➢ **Worksheet** makers give educators the tools they need to create custom homework assignments, handouts, or other worksheets online.

Besides that, now teacher used Some online tools in class room like

1. **Paperform**: though it has started as a form builder, but it's grown into a whole lot more than that. Educators can use our digital suite of tools to create engaging quizzes that grade themselves, schedule meetings with students, parents, and fellow teachers, collect new student information, or poll their classes. With our intuitive and powerful no-code editor, your options are truly limitless.

2. **KutaWorks**: It is a software for creating courses made especially for math and science instructors. It's perfect for educators who operate mostly online and need a means of developing interesting middle and high school STEM curricula. Use the extremely scalable digital tool KutaWorks to plan out your

complete course or just a few worksheets. Students utilize a unique key for each online course to access and complete their assignments from any device. You can pace out the course materials as you see suitable because teachers can give and update assignments at any moment.

3. **Google Classroom:** it is one of the most popular online tools for teachers, and for good reason. It's free for anyone with a Google account, easy to use, and connects seamlessly with the G-suite. it is a central hub where teachers and students can access shared resources and connect all of the Google tools, they use every day (like Docs, Sheets, or Google Calendar). And because it's a part of G-Suite, most people (parents, teachers, and students alike) will already be familiar with how to use it.

4. **Classcraft** is a classroom management tool designed by teachers, for teachers. it's an easy yet clever idea: use gaming principles to motivate pupils to perform well in the classroom. It's a good idea, especially for teachers in elementary and middle schools who work in hybrid learning environments or online.

5. **Prezi** for making stylish lecture presentations and visual aids. It is a no-code presentation software with video editing and design capabilities. It's a great PowerPoint alternative for teachers who don't use Microsoft Office, or for those looking for a cloud-based option.

6. **We transfer** used for homework assignments, class materials, and reports to keep track of, teachers need file-sharing software that can handle it all. WeTransfer is just the thing. It's particularly helpful for educators looking to share materials amongst themselves, like lesson plans or activity sheets. It's also great for teachers looking to share student work with parents in preparation for a PTA meeting (Frakes, 2022).

## Five different pedagogical approaches (2C-2I-1R):

There are five different pedagogical approaches (2C-2I-1R) to teaching and learning. Each one is slightly different, so teachers can choose which method is suitable for their learners. Often, a combination of these approaches is best.

- **Constructivist:** Learners are actively involved in the learning process, creating their own meaning and knowledge of the material
- **Collaborative:** Multiple learners work together, like in small group instruction, and they all contribute and help each other learn
- **Inquiry-Based:** Students address real-world problems, like in project-based learning, by asking questions and doing further research
- **Integrative:** Using multiple academic disciplines and common language, students engage with cross-curricular material
- **Reflective:** Both teachers and students reflect on lessons, projects, and assessments to see how to improve them in the future.

## Utility of ICT integration in Education:

1. **Education for all**: Unquestionably, one of the biggest advantages of ICT in teaching and learning is universal education. Since all the resources are available in the classroom, students can access them outside of it whether relaxing at home or on a family vacation. This helps to remove barriers based on geography and gives all students access to a high-quality education, regardless of where they are in the world.

2. **Tailored Education**: Information and communication technology makes it possible for customized learning experiences to adjust to the needs, interests, and learning pace of each individual student. With the aid of personalized learning, any student can effortlessly realize their greatest potential.

3. **Greater Retention of Knowledge**:  Students appear to learn more effectively from visual aids than from traditional chalk and conversation. The education sector has seen that incorporating technology into lessons through interactive activities, movies, simulations, and practical greatly enhances information retention and can help teachers become more capable educators. This is due to the fact that images and videos are processed and retained by our brains more quickly than texts. Using ICT in the classroom enhances learning by making it more engaging and memorable, which eventually results in a deeper comprehension and longer-term memory of the material.

4. **Time-saving Techniques**: Another advantage of ICT in education is the tremendous time efficiency it provides to teaching and learning. It cuts down on the time needed for manual research by providing rapid access to a wide range of information. Faster communication allows for immediate feedback and teamwork. Digital tools can make administrative chores like record-keeping and grading easier.

5. **Preparation for the Digital Age**: In today's era which is technology dominant, equipping students with ICT skills is a crucial benefit of ICT. Integrating technology or ICT in teaching and learning increases teachers' and students' digital literacy, which is a fundamental requirement for their future or current careers. They learn not only how to use tools but also how to adapt to and thrive in an ever-evolving technological landscape.

6. **Multi lingual Learning**: With the help of the bilingual option in the iPrep Digital Library, teachers and students can choose the language they choose to use for education. This adaptable choice takes into account the pupils' varied linguistic backgrounds.

## ICT in the Classroom:

During the past ten years, the use of digital devices in the classroom has increased. To ensure learning across a variety of courses, educators discover ways to regularly use modern technologies including desktop computers, laptops, tablets, and smartphones. Even though it can be difficult to include ICT-based activities and resources into your lesson plans. It's widely accepted that all students need to understand how to use ICT resources. Using ICT tools to acquire, process, evaluate, and transmit information and data is essential for today's learning population. Both teachers and students benefit equally from ICT use in terms of becoming more self-assured, accountable, thoughtful, and creative.

ICT Contributions to Teachers and Learners

| ICT CONTRIBUTIONS | LEARNER | TEACHERS |
|---|---|---|
| Confident | Confident in working with information and ideas of their own and others | Confident to teach their subject and engage with each student in their learning process. |
| Responsible | Responsible for themselves, responsive to and respectful of others. | Responsible for themselves, responsive to and respectful of others. |
| Reflective | Reflective as learners, developing their ability to learn | Reflective as learners themselves. Developing their practice. |
| Innovative | Innovative and equipped for new and future challenges. | Innovative and equipped for new and future challenges |
| Engaged | Innovative and equipped for new and future challenges. | Intellectually, socially and professionally engaged and ready. |

Source: https://www.doralinternational.org/cambridge, https://www.browardschools.com/Page/32816 Learner
       & Teacher Attributes

## Drawbacks of ICT in Education:

➢ **Large-scale expenses:** In this day and age of modern technology, computers and other high-tech devices have replaced paper documents with their sophisticated capabilities. However, maintaining these machines costs schools and colleges a significant amount of money that could be used to purchase essential supplies.

➢ **Inadequate instructional strategies**: As automation has progressed, teachers have not received equal training in its appropriate application. As a result, rather than learning anything from technology, students are just utilizing it.

➢   **Transforming learners into inefficient learners**: Very difficult to find the word "diligent" in learners nowadays as most of the lessons can be easily accessible to them online through different websites in

their computers which are making them inattentive in classrooms or making the mote skip schools frequently.

➢ **Misguided by the wrong information:** With the speeding development of technology, the websites owner urges to rank their websites higher in search engines, so they only concentrate on rankings instead of the content that they are posting. Many websites come with wrong information that has been copied and pasted from other sources without checking its authenticity. Thus, the learners are misguided by the wrong information available on the websites. These things can perhaps become serious obstacles in their development.

➢ **Creating enough room for cheating:** The mechanized world is making you more and more lazy giving all the powers to control everything by a click of mouse. Cheating is an illegal activity but technology made it more powerful and easy to use with its powerful wings. It has really become very tough to control this activity, especially in the examination environment. Smartphones are available with all its advanced features and instant internet accessibility which compel them to use it without any hassles.

➢ **Increase rate of cyber bullying:** Cyber bullying is an illegal activity where especially youngsters fall under the trap of illegal crimes without their knowledge. The young learners have an easy access to umpteen accounts that tends them to enter into the dark tunnel of harassment which has an entry but no exit at times. They lost in its darkness along with their shining future which could have given miraculous results if cultivated properly but with cyber bullying everything gets washed off all of a sudden.

➢ **Makes learners disconnected from the real world:** In recent days to keep equal pace with technology educators are busy in educating the learners with its online educational tools instead of communicating orally that makes them unable to interact with their teachers and share their problems openly to overcome it. Teachers fail to draw student's attention. To avoid these problem educators should always use verbal communications along with online education tools so that their students can dynamically learn the topics along with proper interactions

➢ **Partial to the low-income group:** low-income group people does not have access to of computers to make it available for their children so in this case those students may be unaware of the basic computer skills that have been learned by other students at a very early stage. Technology needs a huge sum of money to shower its blessings to the educational institutes especially the colleges that requires large number of computers to educate its students with advanced science.

➢ **Replacing books with e-books:** The world is shrinking day by day and so all your important stuffs are now compressed in your favourite gadgets even the books which have now become e-books which are called electronic books. Books are your real assets and can never be replaced by e-books which may not be cost-effective at times and can cause eyestrain E-Books are not compatible in all the devices so your laptop or tablets should have e-book reader to access electronic books and the worst part is your e-book can be hacked easily by the hackers.

➢ **Extinct of good handwriting:** As smartphones, laptops, desktops and tablets wholly replaced the use of paper and pen, therefore, finding a person with good hand writing is just like finding a needle in the haystack. All the important documents are now typed and fitted in that small folder icon in your laptop. Experts say that people are sacrificing their handwriting to adopt the technology for fast learning. Using of technology in place of handwriting slow down your thinking process by making your neurons lethargic.

## conclusion:

During the last 25 years, the usage of ICT has signifcantly altered the methods and procedures of almost every endeavor within educational institutions for the purpose of delivering high-quality education. In the upcoming years, ICT will play a bigger role in the sphere of education. For this reason, it can be implemented in any school setting to inspire students to be motivated. This article highlights the significance of ICT in enhancing the educational system by helping students become more motivated, pay attention, and develop a thorough grasp of the material they are studying. With the significance in mind, ICT merged as a significant component in the field of education at present and near featured.

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