Introduction to Information and Communication Technology in Education

Smooth seas do not make skillful sailors." (African  
Proverb)  
"You can lead a horse to water, but you can't make it  
drink." (A familiar adage.)

Goals of ICT

**Goal # 1** of this book is to help you increase your expertise as a teacher.

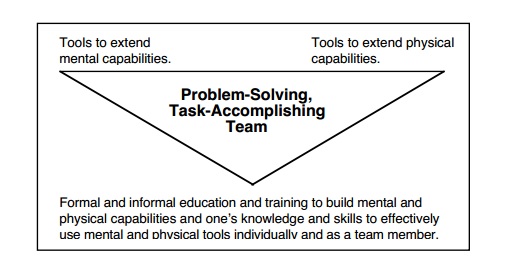
**Goal # 2** of this book is to help increase your knowledge and understanding of various  
roles of ICT in curriculum content, instruction, and assessment..

**Goal # 3** of this book is to help you increase your higher-order, critical thinking,  
problem-solving knowledge and skills.

Big Ideas

It is assumed that you are reading ICT because you are a preservice or inservice teacher,  
and/or because you are interested in learning more about how computers can contribute to  
improving our educational system.

**Big Idea 1: Problem Solving Using Body and Mind Tools**



**Big Idea 2: ICT is a Change Agent**

The invention or development of a new physical body or mental tool creates both  
opportunities and challenges. In brief summary, a new tool typically:  
1. Helps us to “better” solve some problems and accomplish some tasks that we are  
currently addressing without the new tool. Here, the term “better” may have meanings  
such as: in a more cost effective manner; faster; more precisely; more reliably; with less  
danger; and so on.  
2. Helps us to solve some problems and accomplish some tasks that cannot be solved  
without the new tool.  
3. Creates new problems. For example, the development of the 3Rs created the educational  
and social problems of who would receive a formal “grammar school” level of education  
focusing on these topics, and who would provide this education. This problem preceded  
the digital divide problem by about 5,000 years.

**Big Idea 3: Some Basic, Enduring Goals of Education**David Perkins' 1992 book contains an excellent overview of education and a wide variety of  
attempts to improve our educational system. He analyzes these attempted improvements in terms  
of how well they have contributed to accomplishing the following three basic and enduring goals  
of education (Perkins, 1992, p5):  
1. Acquisition and retention of knowledge and skills.  
2. Understanding of one's acquired knowledge and skills.  
3. Active use of one's acquired knowledge and skills. (Transfer of learning. Ability to apply  
one's learning to new settings. Ability to analyze and solve novel problems.)

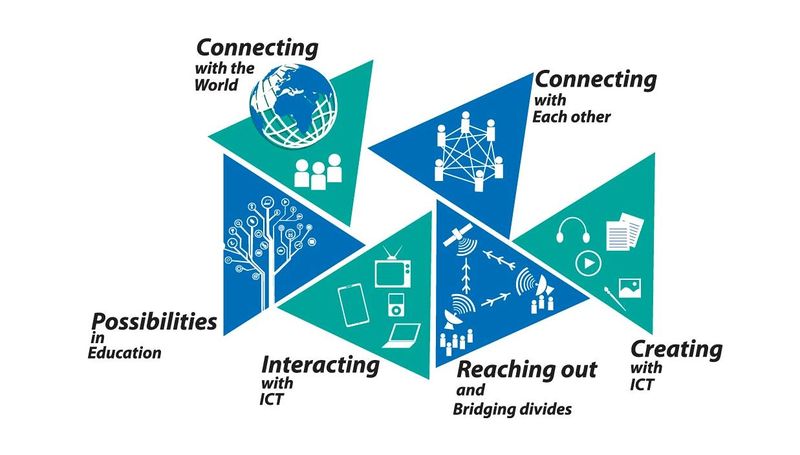
**Big Idea 4: Developing and Increasing Expertise as a Teacher**

**Big Idea 5: Craft and Science of Teaching and Learning**

**Big Idea 6: Taking Responsibility for Your Own Learning**

Generic Computer Tools

Typical generic tools include:  
• Word processor.  
• Database.  
• Spreadsheet.  
• Graphics (both Paint and Draw).  
• Graphing (of data and functions), using both computers and graphing calculators.  
• Desktop publication systems.  
• Desktop presentation systems.  
• Multimedia and interactive non-linear hypermedia systems, including working with  
digital still and motion video, color, sound, and animation.  
• Telecommunications and connectivity, including email, the Web, search engines, and  
groupware.  
• Calculators (the full range, from low-end 4-function calculators to high-end calculators  
that can solve equations, graph functions, and may be programmable).

[](https://teacher-network.in/OER/images/1/17/Ict_curricula.jpg)

**Approach and intent of the state ICT**   
The state ICT syllabus has been based on the aspirations and guidelines set in the National ICT Policy which focuses  
on building the skills of computing, creating and collaborating through safe, ethical, legal means of using ICT.  
The syllabus has emphasised the different possibilities of ICT in society, briefly discussed below.  
1. **Connecting with the world**: Technology is providing new ways for us to access information and learn. Along  
with this, evaluating information and using it appropriately become skills to be developed. This theme will focus  
on accessing the internet, evaluating resources available and creating meaningful personal digital libraries for self  
learning. This will also include an introduction to  
2. **Connecting with each other**: A related dimension of connecting through ICT is in possibilities for learning in  
communities from each other. The focus of this theme will be on how to interact and learn in peer learning  
settings and through online, virtual forums. Collaborating an learning is a key learning expectation from this  
curriculum.  
3. **Interacting with ICT**: Building skills and aptitudes in a technology environment is an important expectation of  
this curriculum. The theme will focus on building a more proactive approach to engaging with technology,  
evaluating appropriate technology choices, maintaining ICT infrastructure and becoming critical users of  
technology, being aware of the social and economic implications of technology.  
4. **Creating with ICT**: This is a theme that focuses on building computing and creating skills in students and  
teachers using various ICT applications. These include data analysis and processing, creating graphics, creating  
audio visual communications, working with mapping applications, creating resources with specific school subject  
related applications and programming.

**What is the nature of ICT level 1**  
**Objectives**  
1. Understanding of computing - ICTs are computers and beyond  
2. Understanding that data is of different kinds and can be edited, processed, combined in multiple formats which is  
what makes it possible to do many things with ICT - **Creating with ICT**  
3. Understanding that there are different devices for reading, representing, communicating data - **Connecting with**  
**ICT**  
4. Understanding of the computer as an ICT device which communicates with data and can connect with other  
computers

**Digital Skills**  
1. Introduction to a range of ICT devices, and specifically the computer  
2. Handling ICT equipment safely  
3. Getting familiar with using an operating system, data management and organizing (though files, folders)  
4. Using input devices for entering data  
5. Exploring multiple applications for understanding different things ICT can do  
6. Introduction to the internet as a method of accessing information

Information and **Communication Technology** (**ICT) in education** is the mode of **education** that use information and communications technology to support, enhance, and optimise the delivery of information. Worldwide research has shown that **ICT** can lead to an improved student learning and better **teaching** methods



**Information and Communication Technology (ICT) in education** is the mode of education that use information and communications technology to support, enhance, and optimise the delivery of information.

Worldwide research has shown that ICT can lead to an improved student learning and better teaching methods. A report made by the [National Institute of Multimedia Education in Japan](http://waset.org/publications/8572/the-use-of-ict-and-e-learning-in-higher-education-in-japan), proved that an increase in the use of ICT in education with integrating technology to the curriculum has a significant and positive impact on students’ achievements. The results specifically showed that the students who are continuously exposed to technology through education has better ‘knowledge’, presentation skills, innovative capabilities, and are ready to take more efforts into learning as compared to their counterparts.

**New trends**

Introducing ICT into education is the answer for those who ask; ‘ how can we increase the reach of our institution, to a larger number of students?.’

The Mobile learning (m ‐learning) as a form of e ‐learning is a rising trend where the education has outgrown the physical constraints of the classrooms and acquired mobility. Students access information whenever and wherever they want, and institutions that provides such advanced technological terrains is rising in number day by day.

**Various devices/technology in ICT includes:**

* Access of course materials through remote devices,
* Online digital repositories for lectures, course materials, and digital library,
* [Online/ cloud based academic management systems](https://www.linways.com/),
* Employing the [flipped classroom](https://stories.linways.in/flipped-classroom-how-technology-is-giving-education-a-leap-like-never-before-54a6f0a68938) concept,
* Making use of handheld computers, tablet computers, audio players, projector devices etc.

Also, the rising number of Massive Open Online Courses(MOOCs) like the [coursera](https://www.coursera.org/" \t "_blank), [khan academy](https://www.khanacademy.org/), and [edx](https://www.edx.org/" \t "_blank) tells us that there is a huge demand for off-the-classroom learning facilities. The future of our institutions will depend on whether or not they can satisfy those needs.

**Why measure ICT in education?**

Policy ‐makers accepts that ICT in education can help the students to compete in the global economy by being part of a skilled workforce and facilitate social mobility by:

* Enhancing learning experiences and providing new sets of skills,
* Reaching more students with Massive Open Online Courses(MOOCs),
* Facilitating the training of faculties,
* Minimising costs and saving time associated with information delivery and automating regular day-to-day tasks,
* Improving the administration of institutions to enhance the quality and efficiency of service delivery.