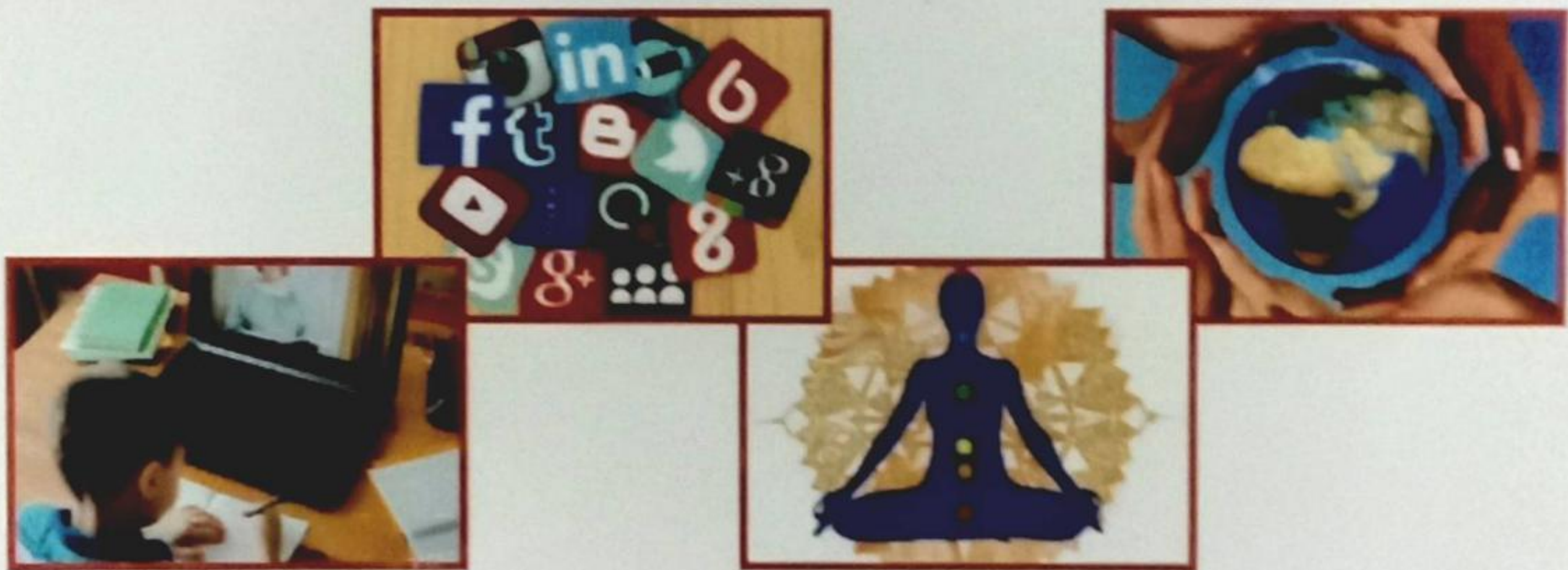# Education in the Transforming World

Dr. Swapan Kumar Maity

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| CHAPTER - 18 |

# EMERGING DEMAND OF ICT FOR PROFESSIONAL DEVELOPMENT OF TEACHER

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## Abstract

*If we look at the decadal growth of education, especially two or three decades back, technology creates a revolutionary role in modern society. In this era of digital learning, the teaching profession is sophisticated and challenging job. In the field of teacher education, we must analyze how to work systematically and effectively with the help of technology? Nowadays, equal importance has been given to offline mode and online mode for each and every learner. Our great teachers always enhance his or her knowledge, skills, methods, style etc. according to the changing need of the society. However, due to the pandemic situation, it is mandatory to upgrade teachers with enabling educational technology to continue the teaching-learning process with new normal system of education. This paper is particularly focused on the ICT skills use in teaching profession and the major initiatives taken by the central government for the development of ICT. The Researcher has collected data from different sources e.g. websites, e-books reports, virtual observation of various organizations and commissions, articles published in local papers, national and international journals etc.*

***Keywords:** Teaching-learning, modern technology, digital platforms*

## INTRODUCTION

*"Education is the most powerful weapon which you can use to change the world."*

*– Nelson Mandela*

A Teacher is the pillar of a nation; teachers teach us what is bad and good for society. Since ancient period to the modern period, even in contemporary time teaching methods, strategies, and style and teaching aids are changing rapidly according to our learners' needs. According to NPE 2005 and recently NEP 2020, the teaching-learning process should be learner-centric and involving all round development of a child. Therefore, the teaching profession is going to be the most challenging profession of any others profession. In the changing

world ICT skills is most important for professional development. Teachers always modify teaching strategies rapidly according to learners' needs and changing societies. Here Educational Technology helps to organize the knowledge and making tool/technique. In the 21ˢᵗ century, the world can be connected globally with the use of new technologies in the education system. ICT plays a great role in developing teacher's quality and make sounder his or her teaching profession. Students can want to learn more updated knowledge from his or her teacher. New education policy 2020 already more attention on the teacher education field, which make build our society for the future generation. The demand of our nation changing is most important of every sectors not only education but others sectors also, so that, these sectors help indirectly. Different kinds of government programme try to developing knowledge for teachers like faculty developing programme, workshops, conferences, and now NISTHA project (Govt. of India) have a great role for developing teacher quality through ICT. In the pandemic COVID-19 situation education system totally depends on ICT. So teachers should be developed his or her flexibility to use ICT for the teaching-learning process.

## OBJECTIVES OF THE STUDY

1. To study the ICT skills used in the teaching profession.
2. To explore the major initiatives taken by the central government for the development of ICT.

## METHODOLOGY

The paper is based on secondary data. The researcher collected data from different sources there are websites, journal articles, e-books reports, virtual observation of various organization and commission, articles published in local papers, national and international etc. That paper will give a brief description of the development of ICT Skills: Emerging Demand of Teaching Professionals in changing World. According to our objectives here teacher, ICT, skills, professional, development etc. are the most essential terms for brief description of this paper.

## DISCUSSION

The purpose of this study was to examine and explain how modern technology is being applied for the professional development of teachers. In the present scenario, there are different types of approaches are being used for grooming the teachers like, inter-disciplinary approach, micro-teaching, simulated teaching, team teaching, programme instruction, refresher courses, orientation programmes, different workshops etc. In these different approaches use of ICT is not a new normal thing. However, how ICT became a gateway to update the teachers is new thing because every day science and technology invent new research and developed new things to upgrade all human being. ICT generates awareness in the teaching-learning process; it creates new innovative trends in pedagogical process, evaluation process, and professional development of the teachers. According to the analysed data, two main perspectives have been emerged:

1. The Role of ICT in the professional development of the teachers, and
2. The challenges of using ICT in the teaching-learning process.

## Use of ICT in Professional Development of the Teachers

Under this theme there are two main sub-themes

a) Preparation of teacher
b) Purpose of using ICT.

## PREPARATION OF TEACHER

Preparation of teacher can be classified into two categories like...

1. Pre-service teacher
2. In-service teacher

During these two processes of preparing a well qualified teacher must be acquired knowledge of ICT skills and proper use in the practical field in the sense class room. Here researcher mention different kind of professional courses for preparing a well competent teacher. Teachers need every time up dated and needs to modify teaching style for teaching learning process.
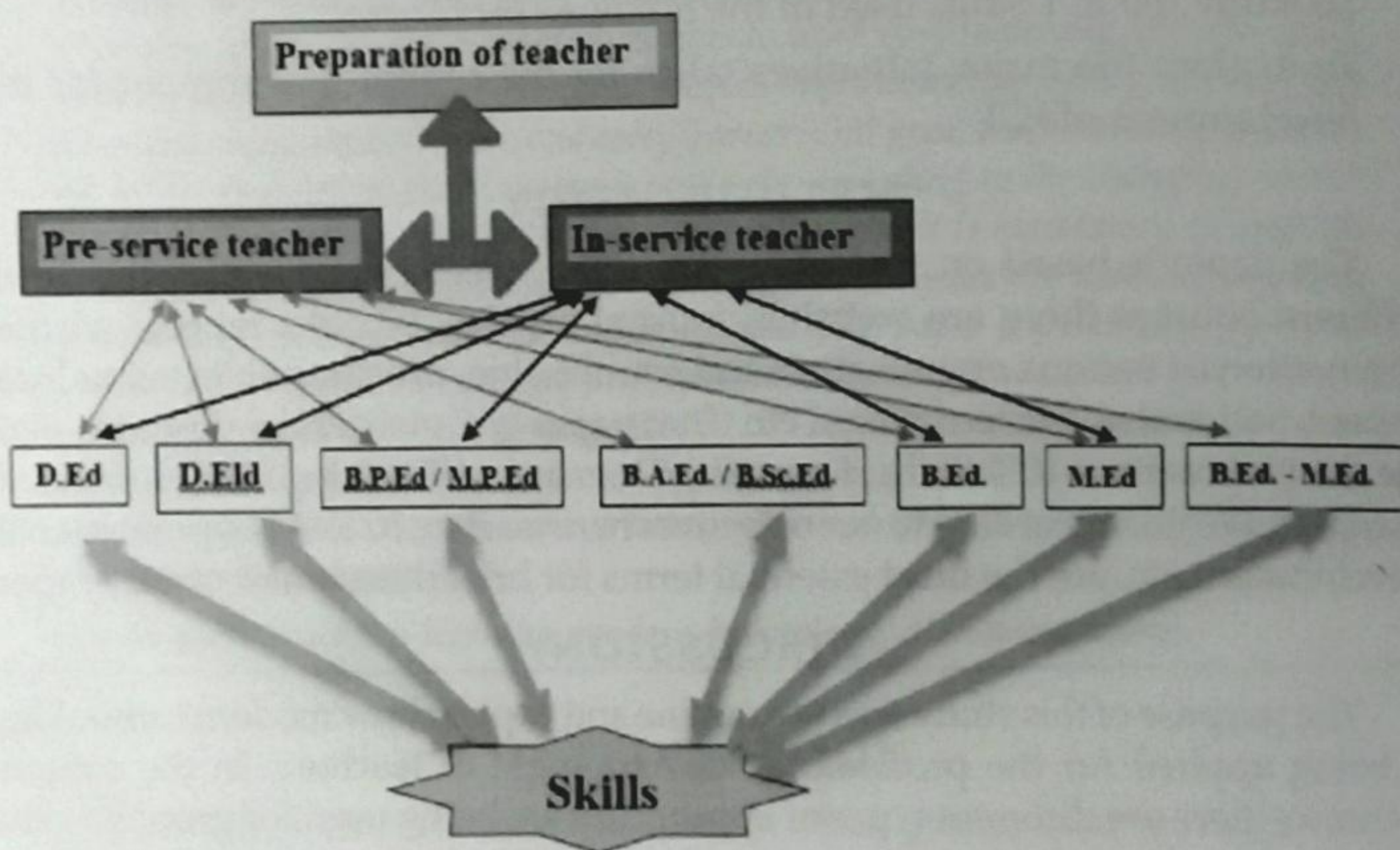


Fig.1: Preparation of Teacher Training Programme

## Main tools of ICT Skills for Teaching Profession

- Computer
- Laptop
- Mobile phones
- Radio
- Tablet

- Digital camera
- Skype
- Twitter
- Social media (Facebook, WhatsApp)
- Microsoft Office Word
- Excel spreadsheet
- Presentation application
- Camcorder etc.



**Fig.2: ICT's Tools in Education, Source - Internet**

## Uses of ICT in the Field of Teacher Education for Changing World

ICT tools can be used two ways method like online and offline mode. During taking class teacher will most probably use offline mode on the others hand in the higher education teacher will take help from online mode.
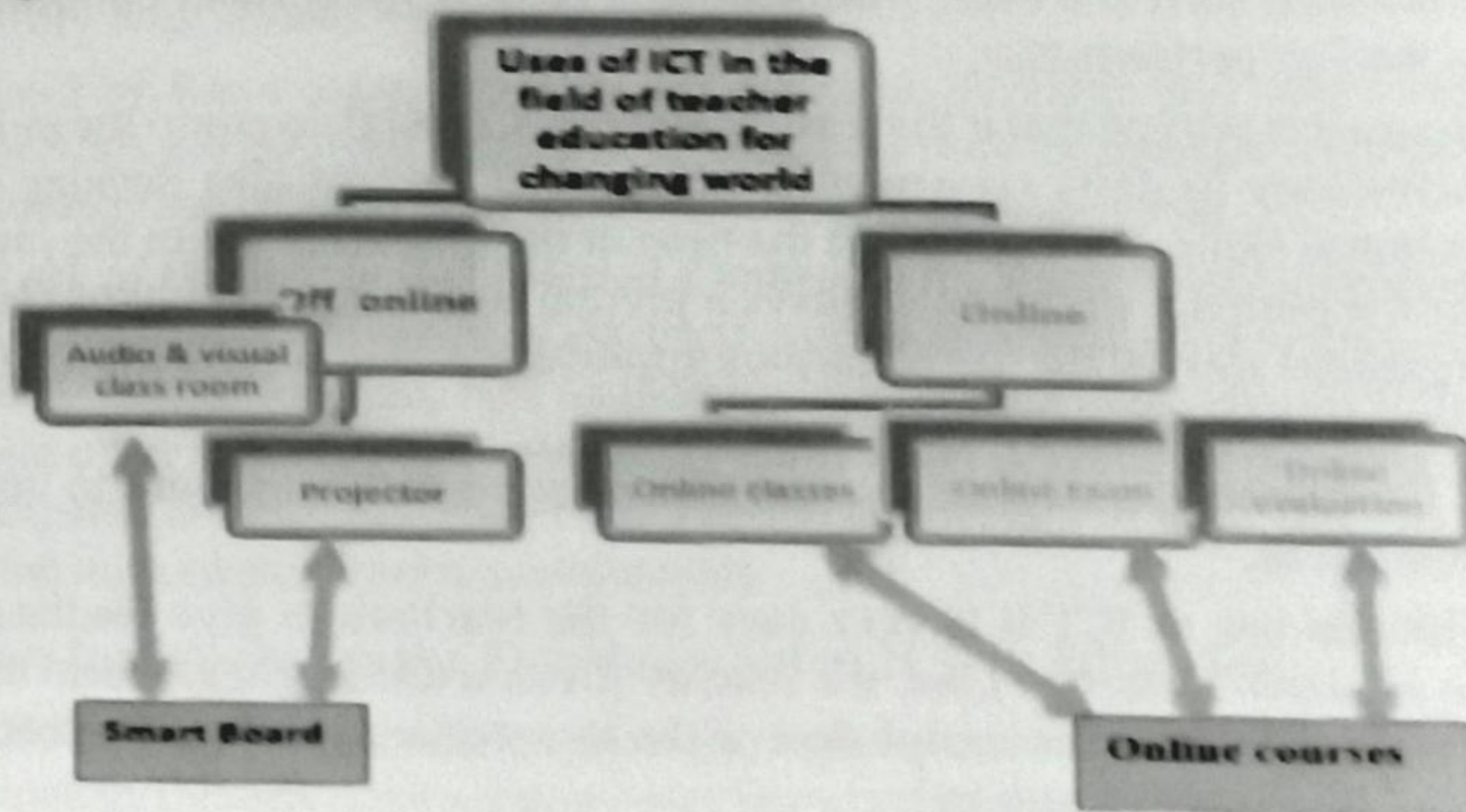


**Fig.3: Uses of ICT in the field of teacher education and changing world**

# PURPOSE OF USING ICT

The classroom is changing day by day in accordance with the advancement of technology. Instead of a traditional one-way classroom, the teachers are more interested in two-way discussion presently. If we look at the evolution of National Policies on Education, to be more specific pedagogical approach, it seemed to be transformed from teacher-centric approach to learner-centric approach which gives much more emphasis on learner. But contemporary trend drastically changed. Twenty-first century policymakers are continuously striving for excellence. Many of them were interested in learning-centric approach and suggested ICT enable the classroom to make well-equipped human resources.

ICT helps to teach:

- According to the need of the learner.
- According to the interest of the learner.
- In accordance with the pace of learning.

For making the teaching- learning process interesting, learning-centric and more effective ICT enable the teacher in various ways, like:

- ICT prepare the teachers in both pre-service and in-service training, like in different online courses (SWAYAM) with the use of ICT teachers upgrade their teaching skill.
- It helps to improve the teaching skills of the teachers for making the teaching process more effective and interesting, like with the use of Power Point projector teacher present the study material in a very effective way.
- It helps the teacher to prepare the student datasheet, to record the student performance in various activities like internal test, preparing projects etc.
- ICT is like a storehouse in the modern teaching-learning process. Because it contains each and every information regarding the student performance to teacher performance.
- Hence it is proved that if the teacher is capable enough to equip the modern technology in daily classroom teaching then student also develop their technical skills. For example, at the time of the online classes in the present corona period, a student also plays a pivotal role to run the online class in organised way by the use of various applications like, Google meet, Zoom, Cisco-WebEx etc.
- ICT enhances the teacher's content knowledge and help them to update themselves.
- With the use of ICT it is very easy for the teachers to give feedback to the students instantly. Like, if a teacher given a test in goggle form to the student then after the completion of the test student get their feedback or know their result instantly.
- With the use of ICT teacher creates a digital learning environment and make teaching-learning process more innovative and accessible for every

student. Like e-Kalpa, it designs the learning environment digital and provide digital contents.

- Because of ICT, it is very easy for any teacher to access any information of others teaching personal related with research, academic performances etc. Like e-Vidwan.
- ICT helps the teacher to provide the study materials with students, to provide any official documents without their physical presence.
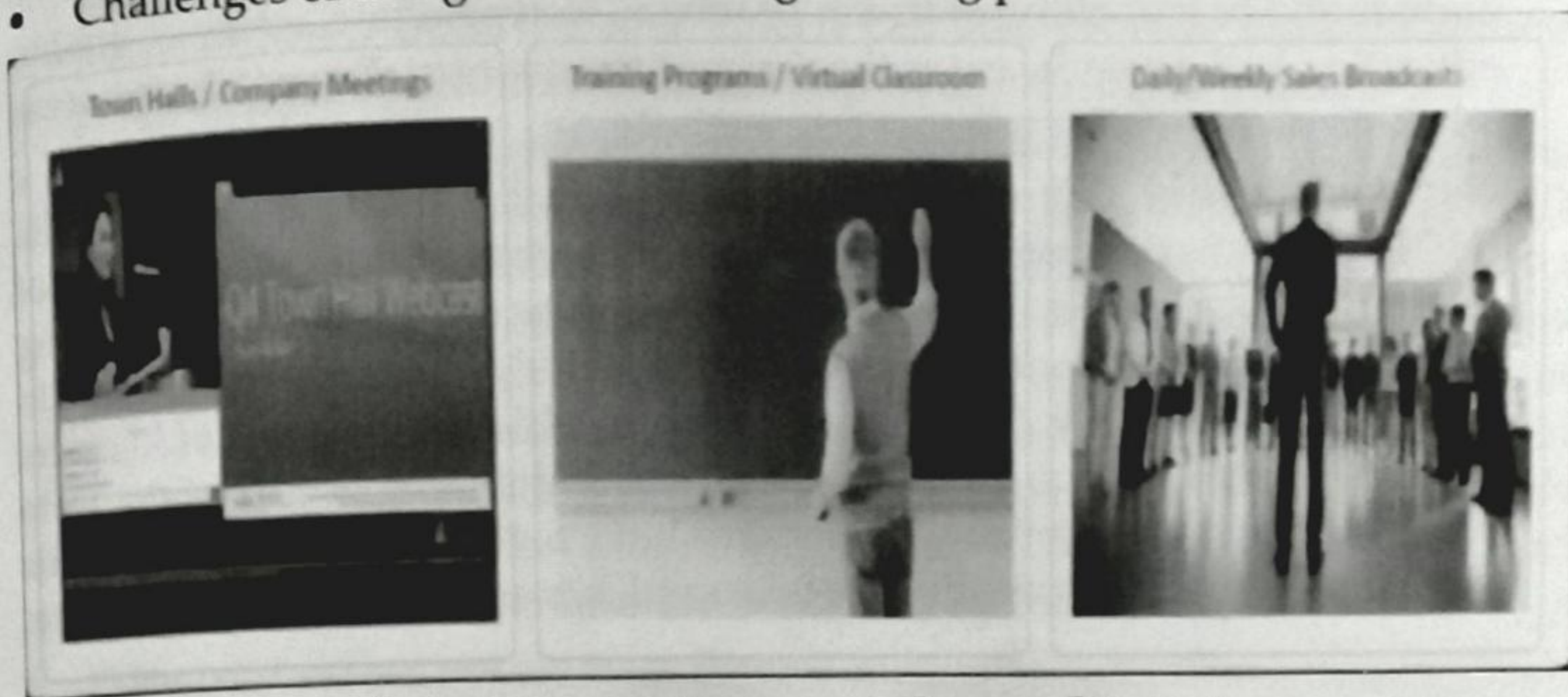- Challenges of using ICT in teaching learning process.



**Fig.4: Advance class rooms. Source- Internet**

## Challenges of using ICT in Teaching-Learning Process

There are three main challenges in ICT are as follows:

1. *Lack of Wealth:* The significant challenge of properly planning, executing, organizing, and using technology is costly. It is often difficult for the government or other private agencies to investing financial resources for every educational institution equally.

2. *Lack of Knowledge:* Many of the teachers, students and other teaching persons are not well equipped to used and nurture modern technology in various activities to do their work in a well-managed way.

3. *Lack of Electricity and Internet Connectivity:* Many schools, especially in the rural areas, do not have electricity connection because of various reasons like, remote location, lack of money, lack of leadership etc. Though there are other schools where electricity connection is available but they are not capable enough to connect the internet connection in their campus due to the high cost of internet connection.

## Major Initiatives for the Development of ICT in Education

National Mission on Education through Information and Communication Technology (NMEICT) programme was launched by the Department of Education, MHRD to make best quality content accessible to all learners in the country without paying any cost. The various initiatives under this programme are following:

- **SWAYAM:** SWAYAM is an umbrella platform offering various online courses according to learner's interest and it covered from secondary to post-graduate level. According to the reports, 2769 Massive open online courses have been offered on this platform and nearly 1.2 crore students have enrolled in various courses (Press Information Bureau, MOE, Govt. of India).

- **SWAYAM Prabha:** It is an central government initiative and its objective is to provide High Quality Educational Channels. Approximately thirty-two channels are working through DTH connection 24*7 across the country. The main motto of launching swayam prabha is to regenerate access of quality education to the remote areas throughout the country. Especially the areas where is no option for internet connectivity.

- **National Digital Library (NDL):** The National Digital Library of India (NDL) is another project, which gives a framework of virtual repository of learning resources. It is basically a single-window search facility. According to the latest reports, more than three crore digital resources are available in this virtual repository. The contents are available for all types of learners from different age group and almost all major domains of education. Data revealed that more than 50 lakh students have registered themselves in this virtual platform and more than 20 lakh students are active learners till date.
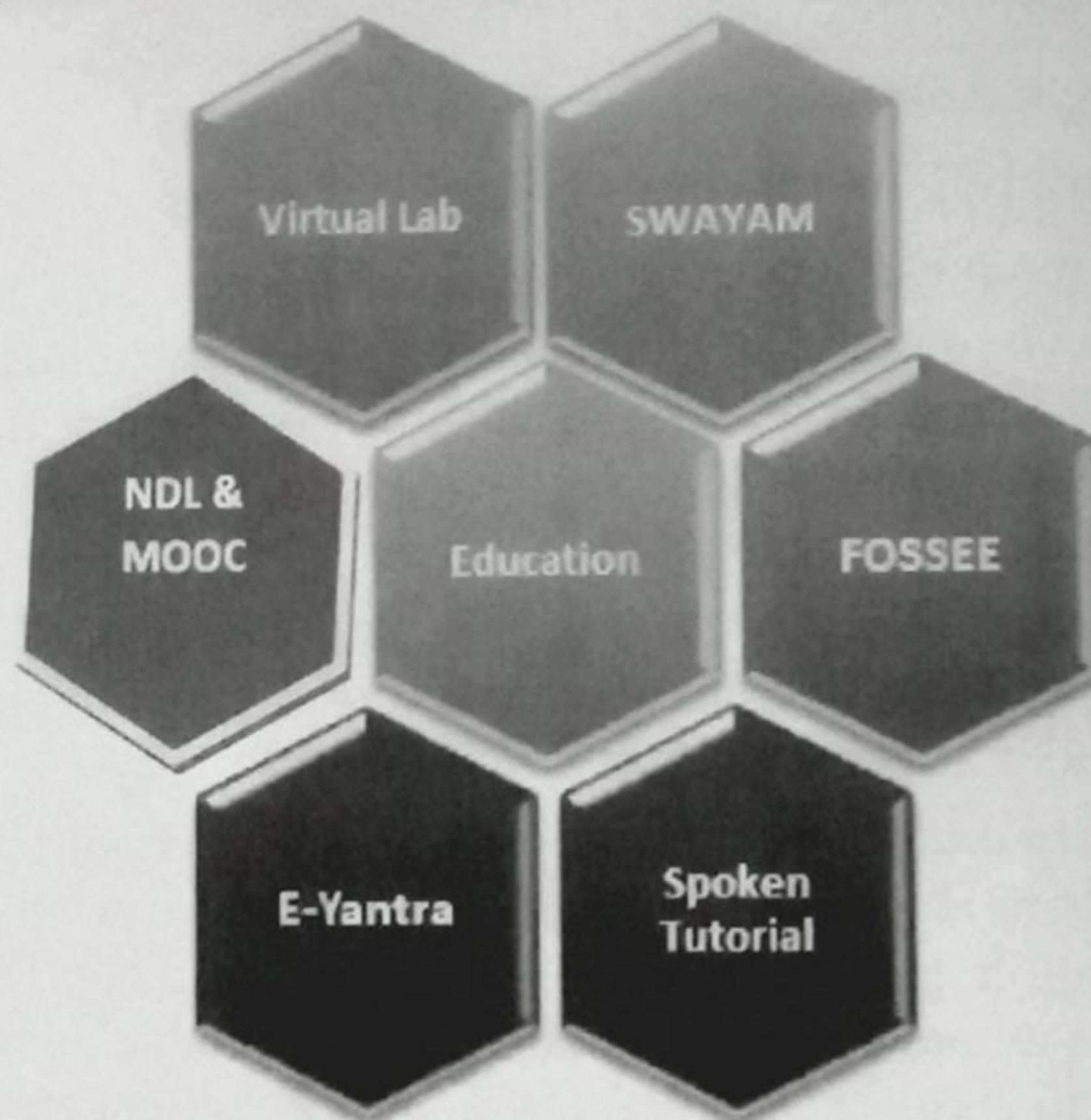


**Fig.5: Major Initiatives for the Development of ICT**

- **Spoken Tutorial:** Spoken tutorials are built to regenerate the employment potential of the learner. This is a 10-mintue long audio-visual tutorial for each session. It is a kind of computer-assisted learning according to the self-pace and interest of the learner, which is dubbed into all twenty-two regional languages. It is available in online version to target tech-savvy

learners. The enabled computer languages are C, C++, Java, PHP, Python, PERL, Scilab, OpenFOAM, OpenModelica, DWSIM, LibreO etc.

> *Free and Open Source Software for Education* (FOSSEE): FOSSEE is a project duly launched Ministry of Education for educational institutions across the nation. The main objective of launching this project is to promote and connect the use of software sources from different institutions. http://fossee.in is the link to open sources whatever we need. For instance, a learner will go through various instructional materials like, spoken tutorials, documentation from the said link. It can also provide some awareness programmes like, conferences, training workshops, and Internships.

> *Virtual Lab:* The Virtual Lab Project has been developed to give a complete interactive simulation environment. It helps to experience various experiments, the collection of requisite data. Even it provides the exact answer of various questions what a learner gone through to assess how much they understand of the acquired knowledge. The main objective of this is to develop problem handling capacities by giving real experience in a 3D overview. According to the government reports, there are 225 such labs operational till now. More than 1800 experiments were to be done and more than 15 lakhs students are benefitted by this project.

> *E-Yantra:* Last but not the least, there is another project called E-Yantra which is a project for engineering colleges across the nation. It enables effective education on embedded systems and Robotics. www.e-yantra.orgis the web address in which we can find all the content related to engineering streams. It is designed to train teachers as well as students through workshops where participants are taught the basics of embedded systems and programming. More than 275 colleges have been benefited with this NMEICT initiative.

## CONCLUSION

Lastly, we must conclude that now a day's technology is an effective way to communicate with learners. Even in this pandemic period, we hardly think about teaching or learning without the help of technological aid. Technological advancement has a great impact on the education system at all levels of education such as Elementary education, Secondary education, and Higher education. Here the teacher facilitates and demonstrates the learning process for enhancing learners' skills. A teacher can develop his or her skills through the different kind of ICT tools. Technological advancement definitely leads our future teachers to create a better knowledge society.

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# Education in the Transforming World

Dr. Swapan Kumar Maity • Dr. Pranab Barman

## About the Editors

**Dr. Maity**, has done his M.A. in Economics, M.A. in Education, B.Ed. and Ph.D. in Education from University of Kalyani, India. He is presently working as an Assistant Professor in the Department of Education of Sidho-Kanho-Birsha University, Purulia, West Bengal, India. Before joining this University he served as an Assistant Professor in the Department of Education, D.N.C. College, West Bengal, India.

He taught Economics and Education at a number of schools (Kalyani Central Model School and Satberia High School), colleges (R.B.C. Evening College, Kalyani Mahavidyalaya and N. G. B. T. College). He is former counselor of IGNOU study centre (code: 2890). He also worked as Research Assistant in Institute for Studies in Population, Agriculture and Rural Change (INSPARC), Kalyani, India. Dr. Maity has published many research articles in various reputed National and International Journals and Edited Books. He has written many text and reference books for different level students. His strong interest and Knowledge in Economics of Education, Educational Technology and Educational Measurement & Evaluation has inspired him to contribute in this book.

**Dr. Barman** is presently working as an Assistant Professor in the Department of Education of Raiganj University, Raiganj, Uttar Dinajpur, West Bengal, India. Before joining this University he has served as an Assistant Professor in the Department of Education, Sidho-Kanho-Birsha University, Purulia, W.B., India from January, 2013 to February, 2020. He has been awarded Ph.D. in Education in 2018 by the University of Kalyani. His research interests are focused on professional problems and issues of teachers, current social and psychological problems, modern technological advancements and changing paradigm of education system etc.

Dr. Barman has published more than 30 research articles in various reputed National & International Journals and Edited Books. He has presented many research papers in National and International Seminars and Conferences. He has edited two books entitled "Higher Education in India: An Overview" and "Social Media: Leisure, Health & Education". Dr. Barman has also published many text and reference books for different level students. "Uchhamadhyamik Shikshabigyaner Ruparekha" and "Shikhan Sampad O Sreni Byabasthapana" (Learning Resource and Classroom Management) are the few books authored by Dr. Barman.

## About the Book

There is now a growing consensus amongst professional educators, students, parents, and stakeholders at different levels of society that we must simply adjust our education system in transforming world. This book will cover almost all the trending issues in the field of education in transforming world. Along with many current issues in this field, this book will specifically contain issues on Govt. policies and programmes to cope with the emerging changes in present Indian society. How to build and develop a knowledge society and skilled society as well, how to build a better balanced social system, what policies will better suit India in its social fabric- will be the areas to reflect upon. We hope that this book will help a lot for the students and scholars in higher education and researches.