ICT Based Teaching-Learning after Post Corona Crisis at Primary Level

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Abstract

ICTs are making dynamic changes in teaching learning process. NCF 2005 has emphasis that technological tools enhances achievements of students. Educational policies also emphasis on ICT based teaching learning. Learning of ICT skills is not enough but it is also necessary how to bring ICT to improve the teaching learning paradigm. Now teaching learning process is not limited within the four wall of the class room. Today using of ICT tools in teaching learning process has changed the total scenario of teaching learning. Government of India had launched ICT in schools in December, 2004 and revised in 2010 to provide opportunities to students to mainly build their capacity on ICT skills and make them learn through computer aided learning process. The main purpose of the scheme is to bridge the digital divide amongst students of various socio economic and other geographical barriers and procurement of computers and peripherals, educational software, training of teachers, development of e-contents, Internet connectivity & set up of smart schools. This article discusses the various ICT tools for teaching learning, ICT in primary education, opportunity and challenges of using ICT at primary level after corona pandemic.

Keyword: ICT, Teaching-Learning

Introduction

Education can act as a powerful tool for reducing poverty and unemployment, improving health and nutritional standards, and achieving a sustained human development-led growth (World Bank, 2004). A strong foundation makes a durable house. This statement is fit for education. Primary education is foundation for whole life education for human being. In India primary education of a child start at the age of 5-6 years and it goes to age of 14 years. India is a federal country and the subject of education put under the 'Concurrent

List' of the Constitution in 1976 which make both the union of states responsible for it. According to NCF 2005 providing children more direct access to multimedia equipment and Information Communication Technology (ICT), and allowing them to mix and make their own productions and to present their own experiences, could provide them with new opportunities to explore their own creative imagination. The National Policy on Education 1986, as modified in 1992, emphasis on educational technology to improve the quality of education. The new scheme ICT@Schhol was started in 2004 and revised in 2010 brought comprehensive and systematic initiative to open new opportunities of learning to the school students. The use of ICT for quality improvement in Education was also included flagship programme on education namely Sarva Shiksha Abhiyaan (SSA) in 2001 by government of India.

ICT provides opportunities for collaboration, sharing and peer learning and constructing new knowledge through digital resources at the various levels in the educational system.

Scenario of Primary Education

It is a constitutional commitment for free and compulsory education up to the age of 14 years. In India, since independence, more importance has been given to higher education but Primary Education was given importance when education was put under the 'Concurrent List' of the Constitution in 1976, denoting joint responsibility of the central and state governments. The New Education Policy (NEP) was announced in 1986 and subsequently revised in 1992. The revised NEP envisaged universal access to enrolment and retention of all children in the age group of 6-14 years and substantial improvement in quality of education to enable all children attain essential levels of living. Education is a fundamental right of children has declared by Supreme Court of India in 1993. Article 21-A (86th amendment of Indian constitution in 2002) describes as eight years of free and compulsory elementary education for the age of 6 to 14 years. In Indian education system, primary education divide into two part mainly- (i) Lower primary- (class 1 to 5) (ii) Upper primary- (class 6 to 8). According to The Right of Children to Free and Compulsory Education (RTE) Act, 2009, every child has a right to full time elementary education of satisfactory and equitable quality in a formal school which satisfies certain essential norms and standards. It came into effect on 1 April 2010.

Government Elementary schools have a shortfall of 9.08 lakh teachers against a sanctioned strength of 51.08 lakh post (as on 31.03.2016). The state of Jharkhand was the highest percentage of vacancies. According to RTE Act 2009 during 2015-2016, 4 lakh teachers were needed at Elementary level in the country.

Following table represents the number of recognized Institutions during 2015-16

Number of Schools*	Level-wise	**Total**	Number
		Primary	840546
		Upper Primary(in total)	429624
		Secondary(in total)	139539
		Senior Secondary(in total)	112637
		Total	**1522346**
	Management-wise	Government	1102783
		Government Aided	83787
		Private Unaided	335776
		Total	**1522346**

*Data source: Government of India Ministry of human resource development Department of school education & literacy statistics division New Delhi 2018, For school education: national institute of educational planning & administration, New Delhi * figures are provisional*

If we focus on current status of primary education in India that is not satisfactory. About 20% of students between the age group of 6-14 years are not enrolled in school. Even among enrolled children attendance rates are low and about 26% of children enrolled in primary school drop out before grade 5.

Following table represents level-wise enrolment in school during 2015-16 (In Thousand).

Level	**Male**	**Female**	**Total**
Primary (I-V)	66873	62250	129123
Upper Primary (VI-VIII	34720	32874	67594
Elementary (I-VIII)	**101593**	**95124**	**196717**

Data source: Government of India Ministry of human resource development Department of school education & literacy statistics division New Delhi 2018, For school education: national institute of educational planning & administration, New Delhi

Changing Role of Teacher

Whole world is facing major crisis due to the pandemic COVID 19 and this time education sector is not apart from this pandemic COVID 19. It is a challenge for both teachers as well as students India. Both has entered in a new world where all educational institutions has closed since lockdown announced. Although they are apart from each other physically but yet they are connected virtually through the digital world. This time, ICT based teaching-learning is only possible to enhancement of achievement. Responsibility of teachers should be to enhance student's creativity, curiosity & motivation during this lockdown period. The role of teacher should be changed as a facilitator who create online learning environment. Now, the role of teachers is not only to feed their learners with factual knowledge and information but also enable and equip them with

all those capacities and capabilities to connect with the global society. As a facilitator, s/he must enable her/himself as well as his learners to get acquainted with new ICT based digital knowledge and advancements of learning tools. Today teachers are required to be facilitators helping their learners to make judgments about the quality and validity of new sources and knowledge, be open-minded and critical independent professionals, be active co-operators, collaborators, and mediators between learners and what they need to know, and providers to scaffold understanding. (Weinberger, Fischer and Mandl, 2002). Analytical survey (2012) at primary Education by UNESCO Institute for Information Technologies in Education said that while exploring the increasing use of ICT for teaching and learning in the primary setting, the various limitations and associated concerns must be fully addressed by school leaders, teachers and parents to ensure that the greatest advantages of ICT are realized for learning purposes. Teachers' initial and continuous training and their training needs and demands in order to better help them integrate technology in teaching and learning (Davis, Preston, and Sahin 2009). According to Sangrà (2001), Internet as a learning tool has been categorized into three broad areas: as a tool to develop training activities at schools in the form of a complementary activity, as a way to facilitate personal contact and therefore interaction among people, and as a resource to widen access to content and services. Training a teacher in using ICT is more important to facilitate the learning process because in Indian context Learning with ICT is quite easy for upper primary section but not relevant for lower section. The age group of children from 6–10 years is not much aware about their study and online classes. The Internet is full of information, learning resources such as textbook, videos, animation etc. But this information can become true knowledge only when the teachers make it significant.

ICT potential

In this digital era and COVID19 pandemic, ICT plays an important role in traditional learning. It has transformed the education from teacher-centered, lecture-based to child-centered, interactive-learning environment. According to Peeraer and Petergem (2009), ICT benefits schools in several ways: (i) enhancing learning in classroom; (ii) improving school management and related tasks; (iii) improving accountability, efficiency and effectiveness in school activities; (iv) introducing usage of Power Point presentations and internet. ICTs are basically an information tools with lots of applications and services that are used to store, produce, process, distribute and exchange information. ICTs has potential to reach or connect large no. of audience in a time through Radio, TV, social media etc. ICTs has potential to make the video lecture more attractive & interesting by using animation specially for primary school children. Teaching learning through ICT makes a strong bond to keep the children learning rather than traditional learning. Animated videos, cartoon characters attract the children more. In this lockdown period by using these animated videos children can be engaged with the learning process. Using of ICT in education promotes the acquisition of the knowledge and skills that will empower learners for lifelong learning.

ICT Tools

ICT tools are devices or object used in transforming information, communication through technology. ICT tools for teaching-learning are many such as computer, television, telephone, mobile, audio devices, video devices, interactive multimedia, interactive whiteboard, software, video conferencing, etc. Following are some ICT Tools:

Quizzes/testing/games

- **BookWidgets** -Worksheets, simulations, games & more for use in classrooms and multi-touch books

- **Classkick** - Easy real-time feedback & formative assessment.

- **Classmarker** - Easy online testing

- **Educaplay** - Create numerous interactive games with instant feedback

- **Flipgrid** - Create a Grid - that's your classroom or community. Add a Topic or two to spark the discussion. Your students share short video responses to ignite a dialogue. Super simple. Super powerful.

- **Flubaroo** – It's help to assess and evaluate student's work/progress through online.

- **Formative** - A free platform for creating formative assessments + acting on real-time student insights

- **Genial.ly** - The tool for creating interactive content that makes your audience fall in love. Communicate, educate, and attract by bringing your content to life.

- **Gimkit** - Students earn in-game cash by answering questions correctly. They can invest this money while playing an interactive game.

- **Google Forms** - Easy for quizzes, evaluations or questionnaires

- **Goosechase** - Scavenger hunts for the masses. Bold, crazy and highly addictive. Incredibly easy to use with all the power you could ever want.

- **H5P** - Create, share and reuse interactive HTML5 content in your browser.

- **JeopardyLabs** - allows you to create a customized jeopardy template without PowerPoint

- **Kahoot** - Interactive and motivational quiz

- **Learnclick** - Create online cloze quizzes. Simply mark words to turn them into gaps, dropdown or drag & drop quizzes.

- **MasteryConnect** - Identify levels of understanding, target students for intervention, and improve learning and instruction.

- **Plickers** - Plickers is a powerfully simple tool that lets teachers collect real-time formative assessment data without the need for student devices

- **Poll Everywhere** - Live interactive audience participation. Engage your audience or class in real time

- **Purpose Games** - Quizzes and knowledge games - topic specific

- **Quizalize** - Create your own quizzes in 1 minute or pick one from our growing Marketplace.

- **Quizbean** - A quiz creator to quickly assess your students

- **Quizlet** - Flashcards, study games, and tests

- **Quizizz** - Quizizz is a fun review tool that allows the entire class to practice together
- **Quizstud** - QuizStud is an online platform where everybody can design and play their own exciting quizzes and where large groups of players can answer the multiple choice questions with their smartphone or tablet.
- **Socrative** - Online quiz where the teacher can keep track of all students' progress
- **SurveyMonkey** - Create Surveys, Get Answers
- **Voxvote** - Free and easy Mobile Voting tool for ANY speaker or teacher.

Lesson Series

- **BookWidgets** - Worksheets, simulations, games & more for use in classrooms and multi-touch books
- **GoConqr** - Create your own personal learning environment with Access to over 3 million crowd sourced resources.
- **Gooru** - Give your students free tools, digital content, and data to own their learning.
- **ReadWriteThink** - Providing educators, parents, & afterschool professionals with free access to the highest quality materials for reading & language arts instruction.
- **Showbie** - Showbie is the fastest, easiest and most effective app for assignments and feedback on your classroom devices.
- **TesTeach** - Creating digital lessons

Creative creations

- **BlendedPlay -** Blended games for the classroom using your content.
- **Canva** - Canva makes design simple for everyone. Create designs for Web or print: blog graphics, presentations, Facebook covers, flyers, posters, invitations and so much more.
- **Infogram** - Create and publish beautiful visualizations of your data in charts and infographics. Interactive, responsive, and engaging.
- **Piktochart** - Create a multimedia infographic
- **Pixton** - The world's best way to make comics
- **ScribbleMap** - The Easiest Way to Draw Through Share Maps
- **Storybird** - Easily create your own book
- **Wordle** - Create a 'poster' (word cloud) out of words
- **Venngage** - Everything you need to create and publish infographics is right here.
- **Visme.co** - One intuitive tool for all of your visual communication needs.
- **Vizualize** - Visualize your resume in one click

Online collaboration

- **Asana** - Asana is the easiest way for teams to track their work—and get results.
- **Edmodo** - The safest and easiest way for educators to connect and collaborate with students, parents, and each other.
- **Google Docs** - Work on the same document at the same time
- **Google Slides** - Work on the same presenation at the same time
- **Google Spreadsheets** - Work on the same spreadsheet at the same time
- **MeisterTask -** MeisterTask is the most intuitive task management tool on the web. Combine it with MindMeister for a complete workflow from first idea to finished project.
- **Seesaw** - Seesaw is a student-driven digital portfolio. We make it simple to get student work in one place and share with parents.
- **Stoodle** - Stoodle makes it easy to learn from and teach fellow peers online.
- **Talky** - Truly simple video chat and screen sharing for groups.

Presentations

- **Buncee** - Make Learning Fun Your creation and presentation tool
- **Google Slides** - Work on the same presenation at the same time
- **Lesson Up** - Create fun and engaging digital lessons
- **Mentimeter** - Create graphics at an instant using students' input
- **Nearpod** - Create interactive slideshows, using questions, quizzes, images & text.
- **Peardeck** - Create beautiful interactive lessons, presentations, and assessments to engage every student
- **Prezi** - Create an online slideshow
- **Prowise** - Together we can create a learning environment which is more engaging and inspiring and elevate collaboration in your schools.
- **SlideShare** - Share what you know and love through presentations, infographics, documents and more

Videos/Cartoons

- **Animaker** - Animaker is home to the largest collection of animated characters, properties, BGs, icons, charts and maps in the world.
- **Binumi** - The world's first curriculum-linked video assignment tool – assign video projects with a single click
- **Biteable** - The World's Simplest Video Maker

- **ChatterPix** - ChatterPix can make anything talk - pets, friends, doodles, and more (iPad only)
- **Clipchamp** - Clipchamp offers a free video editor, compressor, converter and webcam recorder. Get started today.
- **DoInk** - Do Ink provides Creativity Apps (Green Screen, Animation and Drawing) for students to show what they know in education
- **EDpuzzle** - Make any video your lesson.
- **Educreations** - Create educational videos (iPad only)
- **GoNoodle** - Discover hundreds of videos that get your kids active at school and at home.
- **Powtoon** - Animated videos and presentations
- **Shadow Puppet** - Easily create videos in the classroom.
- **TedEd** - Build a lesson around any TED-Ed Original, TED Talk or YouTube video.
- **Toondoo** - Create your own cartoons very quickly
- **Voki** - Speaking characters for education. Educate, engage, enjoy!

Brainstorm/organising

- **Answer garden** - Allows students to give answers which will show on the teacher's screen
- **ChartGo** - The online chart maker. Create rich and colorful charts.
- **Coggle** - The clear way to share complex information. Coggle is a collaborative mind-mapping tool that helps you make sense of complex things.
- **Huzzaz** - The place to showcase, discover and collect the videos that matter most
- **Lino it** - Create and share canvases with post-its and other online tools
- **Mindomo** - Easy-to-create and share mind maps, concept maps, task maps and outlines. Mind mapping software for Web, Desktop, iOS and Android. Mind map with us for free!
- **Note App**- Bring sticky notes to your team, in real time.
- **Padlet** - Create a poster/brainstorm online
- **Popplet** - To capture and organise ideas (similar to mind maps)
- **Postermywall** - Enables students to create an interactive poster
- **Tagxedo** - Word clouds in various interesting shapes
- **Thinglink** - Enables students to create an interactive poster
- **Timeglider** - Web-based timeline software for creating and sharing history, project planning and more
- **Timetoast** - Timetoast timelines are a beautiful way to share the past, or even the future.
- **XMind -** Amazing brainstorm and mind mapping tool

Studying

- **CoboCards** - The best online flashcard software
- **Cram** - Find flashcards to study or create your own
- **Vocabulary** - Acquire vocab easily
- **WRTS** - Study vocabulary easily and effectively

Other

- **ClassroomScreen** - The best screen for every classroom
- **Diigo** - Diigo is a powerful research tool and a knowledge-sharing community
- **FeedbackFruits** - Create interactive study materials (video/document/audio/presentation) and assess student engagement within your LMS
- **HP Reveal**- Turn everyday objects, images, and places into new opportunities for engagement through striking augmented reality experiences.
- **iRubric -** iRubric is a comprehensive rubric development, assessment, and sharing tool.
- **RubiStar** - RubiStar is a free tool to help teachers create quality rubrics.
- **Super Teacher Tools** - Useful tools that can be used during your lesson
- **Synth** - Empower student and teacher voice by making it easier than ever to listen to each other and build conversations in bytes.

MHRD Initiatives

Government facilitates e-learning platform for students amid COVID19 outbreak .The govt. has launched some excellent digital initiatives for school students till the time school are closed.

SHAGUN is an online junction under which the department of school education in the government of India and all states and union territories have launched several e-learning platforms. There are 3 e-learning platforms which comes under the purview of SHAGUN:

1) **NREOE**: It is a collaborative platform which brings together everyone interested in school and teacher education. It is initiated by the Department of School Education and Literacy, Ministry of Human Resource Development, Government of India and it is managed by the Central Institute of Educational Technology, National Council of Educational Research and Training, the Repository runs on the MetaStudio platform, an initiative of the Knowledge Labs, Homi Bhabha Centre for Science Education.

2) **DIKSHA:** DIKSHA has a repository of content that can be used by teachers and students. It is initiated by Ministry of Human Resource Development (MHRD), Govt. of India and National

Council of Educational Research and Training (NCERT). It provides access to curriculum linked content compared to the general content. It helps a lot in engaging the students in the classrooms.

3) **e-pathsala**: It is a joint initiative of Ministry of Human Resource Development (MHRD), Govt. of India and National Council of Educational Research and Training (NCERT). It has been developed for showcasing and disseminating all educational e-resources including textbooks, audio, video, periodicals, and a variety of other digital resources at school level. Through this web-portal, students from class 1st to 12th will be able to less than 1886 audios, 2000 videos, 696 e-book and 504 flip books. e-pathsala is also available in several languages like the other digital platforms.

4) **SWAYAM PRABHA**- It is a collection of 32 DTH channels which run 24*7 for the students. Everyday new content of at least 4 hour duration is floated on yhr website which runs 5 times in a day. Students from class 1st to 12th can get access the interactive learning through this medium.

5) **SWAYAM:** It is tool for self-actualization providing opportunities for a life-long learning. Here, learner can choose from hundreds of courses, virtually every course that is taught at the university / college / school level and these shall be offered by best of the teachers in India and elsewhere.

6) **National Digital Library of India:** Its run by MHRD under its national mission on education through information and communication technology to provide content to school students also.

Challenges

Although ICT has potential to explore the education at primary level in a great extent yet lots of challenges and issues confronting the implementation of ICT in primary level specially in government sectors of remote villages and rural areas. Followings are some challenges:

✓ Lack of proper knowledge and training skills is one of major issues in using ICT at primary level.

✓ Research says lack of motivation in both side of a teacher and students stop them. Besides it lack of confidence, insufficient knowledge about integration of ICT in lesson, paucity of time pulling towards traditional teaching-learning.

✓ Inadequate computer in the class room, low speed of internet, issues of maintenance and upgrading of ICT equipment decrease the interest of students as well as teacher for using ICT in teaching learning.

✓ In rural areas, children does not have personal computer at their home for practicing. At the same time the ratio of computer per student is insufficient in school. Hence students do not have knowledge even of fundamental of ICT at primary level.

✓ In rural areas primary school, absence of ICT service center, lack of timely technical supports is major issue to optimizing computer use in school.

✓ Schools are facing unavailability of ICT related resources such as supporting infrastructure, proper supply of electricity, supplementary resources like multimedia, projector, scanner, smart board and so on.

Conclusion

Primary education works as a pillar for higher education for development of any individual. All schools are closed during the corona pandemic. Face to face classroom teaching-learning process has been close. So that this pandemic time, ICT based teaching-learning process will be provide best opportunities to the learners for collaboration, sharing and peer learning and constructing new knowledge through digital resources at the various levels in the educational. Although the ICT based teaching-learning never replace the face to face classroom teaching-learning process but in this lockdown period ICT based teaching appears to be a panacea. Face-to-face classroom teaching-learning process is much fruitful for primary school students but to teach nothing is better than teach something through ICT. There are lots of thing to learn through ICT and keep students engage in teaching-learning process through using different ICT tools. But some challenges and issues are obstacle in the way of online teaching for both teachers and students such as lack of infrastructure, lack of internet connectivity, lack of trained teachers, lack of awareness about ICT based teaching-learning, illiterate parents, poverty etc. All the teachers who is engage in primary school must take this lockdown period as an opportunity and learn about digital world and enhance their capacity.

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