



CHALLENGES AND BARRIERS TO INTEGRATION OF ICT IN INDIAN SCHOOLS AND ROLE OF TEACHER

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Abstract

The present conceptual paper focused with the information of challenges and barriers to integration of ICT in Indian schools. ICT resource sharing and role of teacher is also explained in the paper. This current paper deals with the concept of ICT and discuss the need and importance of ICT in present education scenario. The need to being information to various users has encouraged the creation of much innovative work with new technology. Also focused how information technology has made in inevitable for school education to keep pace by constant innovative atmosphere in the educational organization. The present paper focused with prime objectives are (i) To understand the concept and importance of ICT. (ii) To analyze the challenges and barriers to integration of ICT in Indian schools. (iii) To discuss the role of teacher in the Information and communication Technology.

Keywords: *Challenges, Integration, Role of Teacher*



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Introduction:

Information is nothing but data in a properly decoded and arranged manner and Communication is the exchange of this information. When new digital technology is applied for this communication, it is called Information and Communication technology. We are in the knowledge era or information age. And the focus is now on ICT. ICT is proving to be more powerful than previous technologies because of their ability to integrate multiple media into simple educational applications, interactivity, flexibility of use and connectivity. Not only text but a full range of media including graphics, speech, sounds, still and moving pictures can all be stored and conveyed.

Education seems unlikely to escape the influence of such technological development especially as the cost of access to ICT continues to fall. Undoubtedly this is leading to the ascendance of web-based learning as a popular mode of education being adopted by distance teaching as well as conventional institutes. We can say that adoption of ICT has opened up new and fundamentally different options in education.

Nature and Characteristics of ICT:

- Information received through ICT is believable and exact.
- ICT can update and resend information quickly whenever there is any change or addition.
- Implementation of actions becomes very fast when information is passed via ICT.
- Telephonic communication, video-audio conferencing is oral and in real time so immediate decision-making is possible.
- Communication between a sender and receiver becomes very easy in any part of the world.
- Digital messages can be stored and used as proofs and for references.
- Communication has become cheaper due to advancements in ICT.

Need and Importance of ICT in Education:

Due to globalization, and the World Wide Web, our world has shrunk. Exchange of information, ideas, views, etc. have become the key-factors for living in this modern world. Times are changing rapidly and those who do not keep pace with the changing times, are left far behind. Information and Communication Technology has made the world accessible on our fingertips. Newspapers, televisions, radios, and computers – we have become to them and cannot live without these tools of ICT.

Need:

- 1) **Source of information** – ICT covers most of the mass media such as newspapers, television, satellite, internet, etc. Thus there is a vast ocean of knowledge and information available waiting to be tapped and disseminated.
- 2) **Balanced development in rural and urban areas** – There is a strong need to remove social and economic heterogeneity in society especially in a highly populous country like ours where nearly 70% of our population lives in villages. True progress of our nation can only take place when the rural areas are also equally involved and upgraded with modern technology.

- 3) **Distance education** – More and more people are opting for distance education for several reasons – earn and learn, part-time education or just for gaining more knowledge. Thus with ICT the best of education can be received sitting in any remote corner.
- 4) **Online or e-learning** – E-learning is the new mantra where anything and everything is available on the World Wide Web. But to avoid overloading of information, one needs to use ICT for the proper organization and distribution of this knowledge.
- 5) **Conferencing** – Time is money and the jet-setting executives and professionals need to constantly stay in touch and updated. With the help of ICT, people can stay in touch personally and in real-time.
- 6) **Exchange of views and ideas** – Man is a social animal. He constantly needs to interact with other people of his kind and ICT greatly facilitates this process.
- 7) **Shrinking the globe** – Due to globalization and huge influx of mass media, the world has become a small place and it is needed to know about all the peoples of the world for better social understanding and development. Here too ICT can play a key role.

Challenges and barriers to integration of ICT in Indian Schools:

Challenges of ICT:

- 1) **Infrastructure** – No electricity, no proper personnel to handle computer labs, improper facilities like spoiled switches, broken, unplugged wires, etc all hampers the implementation of ICT.
- 2) **Finance** – Lack of funds or their improper distribution to buy latest technology gadgets such as computers, k-yans, OHPs, LCDs, tape drives, UPS systems, servers, etc.
- 3) **Lack of Trained Teachers** – Inexperienced teachers who do not know the fundamentals on how to operate the ICT devices or help students to make use of ready software
- 4) **Student Ability** – All students may not have the requisite skills or abilities tuned to using or learning through ICT.
- 5) **Load Shedding** – Electricity is a pre-requisite to running computer labs and load-shedding is a common problem in our country.
- 6) **Psychological preparation** – Students and Teachers both can have mental blocks in using ICT devices thinking these are complicated and difficult to use.

7) **Technical challenges** – Qualified hardware technicians need to be called or employed for the regular maintenance of ICT tools.

8) **HOTS** – For certain tasks and understandings, and preparation of education software people with high cognitive abilities are required.

Thus the educational institutes along with aid from the government should work hard towards overcoming these challenges.

Barrier to integration of ICT in Indian schools Classrooms:

Discussing the barriers to successful integration of ICT into the teaching/learning process, distinguishes the following factors:

- *Lack of support for the educational personnel and learners;*
- *Lack of teacher competencies to use certain software;*
- *Insufficient financing (of teacher professional developments in ICT field, of appropriate computer hardware and software etc.);*
- *Lack of cooperation among academic personnel in the same and in another schools.*

Distinguishing barriers to the ICT integration into the teaching/learning process, describes them in a more detailed and structured way:

- *Lack of competencies;*
- *Limited accessibility*
- *Lack of support*
- *Lack of competencies*
- *Shortage of time*

Solution:

Political decisions:

Using information and communication technologies in the process of teaching/learning, i.e., in class, their integration into the present curriculum aiming at improvement of teaching/learning is the most difficult process. This attempt to integrate information and communication technologies can be fruitless and inefficient unless the Ministry of Education and Science plans and provides schools with proper resources.

School management:

Schools can play a very important role in integrating ICT into the system of education. It is worth mentioning that not only ministries should take how the process of integration should

be organized, but also schools could give feedback on difficulties they are facing integrating ICT into curriculum and suggesting what could be done differently.

Teacher as learner:

Teachers have to experience learner position. In the learner position teacher models a positive situation for learners and shows learners a different perspective, which makes the perception of new subjects easier. Teacher has to feel free and without any restrictions in the teaching environment. Only these feelings will foster the teacher to learn and develop further.

Barriers as opportunities:

The emerged difficulties should be viewed as opportunities to develop. It should not decrease motivation but should be transformed into the constructive process of teaching/learning, which could support ICT integration in a more efficient way (Lai 2001).

Peer support:

Reliable colleagues can become internal "technology" teachers who could teach in small and convenient groups. Teachers can be provided help by sharing best practices of the same school teachers or analyzing the benchmarking projects.

Time issue:

If the school intends to achieve good results in the area of ICT integration, then at least one week a year should be devoted to teacher activities outside the class. During these events teachers should be acquainted with innovations in information and communication technology area, and should be explained in detail how to use these innovations and integrate them into the process of teaching/learning.

Role of the teacher:**Teachers remain central to the learning process**

A shift in the role of a teacher utilizing ICTs to that of a facilitator does not obviate the need for teachers to serve as leaders in the classroom; traditional teacher leadership skills and practices are still important (especially those related to lesson planning, preparation and follow-up).

Lesson planning is crucial when using ICTs

Teacher lesson planning is vital when using ICTs; where little planning has occurred, research shows that student work is often unfocused and can result in lower attainment.

Pedagogy:**Introducing technology alone will not change the teaching and learning process**

The existence of ICTs does not transform teacher practices in and of itself. However, ICTs

can enable teachers to transform their teacher practices, given a set of enabling conditions. Teachers' pedagogical practices and reasoning influence their uses of ICT, and the nature of teacher ICT use impacts student achievement.

ICTs seen as tools to help teachers create more 'learner-centric' learning environments

In OECD countries, research consensus holds that the most effective uses of ICT are those in which the teacher, aided by ICTs, can challenge pupils' understanding and thinking, either through whole-class discussions and individual/small group work using ICTs. ICTs are seen as important tools to enable and support the move from traditional 'teacher-centric' teaching styles to more 'learner-centric' methods.

ICTs can be used to support change and to support/extend existing teaching practices

Pedagogical practices of teachers using ICT can range from only small enhancements of teaching practices using what are essentially traditional methods, to more fundamental changes in their approach to teaching. ICTs can be used to reinforce existing pedagogical practices as well as to change the way teachers and students interact.

Using ICTs as tools for information presentation is of mixed effectiveness

The use of ICTs as presentation tools (through overhead and LCD projectors, television, electronic whiteboards, guided "web-tours", where students simultaneously view the same resources on computer screens) is seen to be of mixed effectiveness. While it may promote class understanding of and discussion about difficult concepts (especially through the display of simulations), such uses of ICTs can re-enforce traditional pedagogical practices and divert focus from the content of what is being discussed or displayed to the tool being utilized.

Teacher technical abilities and knowledge of ICTs:

Preparing teachers to benefit from ICT use is about more than just technical skills

Teacher technical mastery of ICT skills is a not a sufficient precondition for successful integration of ICTs in teaching.

'One-off training' is not sufficient

Teachers require extensive, on-going exposure to ICTs to be able to evaluate and select the most appropriate resources. However, the development of appropriate pedagogical practices is seen as more important than technical mastery of ICTs.

Teacher usage of ICTs:

Teachers most commonly use ICTs for administrative tasks

Teachers most often use ICTs for 'routine tasks' (record keeping, lesson plan development, information presentation, basic information searches on the Internet).

More knowledgeable teachers rely less on "computer assisted instruction"

Teachers more knowledgeable in ICTs use utilize computer assisted instruction less than other teachers who use ICTs, but utilize ICTs more overall.

How teachers use ICTs is dependent on their general teaching styles

Types of usage of ICTs correlate with teacher pedagogical philosophies. Teachers who use ICTs the most -- and the most effectively -- are less likely to use traditional 'transmission-method' pedagogies. Teachers who use more types of software tend to practice more "constructivist" pedagogies.

Teaching with ICTs takes more time

Introducing and using ICTs to support teaching and learning is time consuming for teachers, both as they attempt to shift pedagogical practices and strategies and when such strategies are used regularly. Simply put: Teaching with ICTs takes more time (estimates vary on how much extra time is required to cover the same material; 10% is a common estimate).

Conclusion

ICT applications are not going to replace the physical form of information sources completely but no doubt to meet present demands, to satisfy the remote users and to provide information. With the help of ICT enabled services it will be easy to education and users to get information immediately, to segregate information, to use multiple search words, to save cost, time and efforts of staff and users, and remote access to information and different databases. Now, innovative strategies can be adopted to develop the knowledge innovation culture of education, which consists of establishing an environment beneficial to knowledge innovation.

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