ICT in Education and its Judicial Use

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Abstract: *The article reviews on what is ICT and its role in improving the quality of education. ICT can change the traditional concept of learning process and the components of ICT should be integrated in the education program me in such a way that teaching should be enabled to face the new demands and improve the efficiency and effectiveness of education at all levels in both formal and non-formal settings. Additionally the impact of ICT in teacher education is discussed. Knowledge of ICT and skills to use ICT has gained immense importance for today's teacher. Impact of ICT and its potential for the education field is diverse. It positively affects all the stakeholders of the education field. This paper discuss the same along with the several challenges posed by ICT. The challenges include economical issues, educational and technical factors. Appropriate content, Design and workability of ICT also play a vital role in adoption of ICT in the education field. The paper outlines in brief the challenges and probable solutions.*

Keywords: ICT, Teacher Education, e-learning, interactive learning, pedagogy

1. Introduction

Information and Communication technologies (ICT) have become commonin all aspects of lifein 21st century. The introduction of ICT has caused a paradigm change in the fields of education in last two decades.With the world moving rapidly into digitalmedia and information, the role of ICT in education is becoming more and more crucial and thisimportance will continue to grow and develop in the coming years.The teacher and learner must be very well equipped to use technology for improving learning outcomes. Educational reforms include successful designing and implementation of ICT in teaching learning process, which is the key to success .It involves use of computers, computer software and other devices to convert, store, and process, transmit and retrieve information and includes the services and application associated with them.*(UNESCO (2002).[1]*

However with the advent of ICT one puzzling question concerning the real impact of these technologies on educational outputs and outcomes comes up. As ICTs are being increasingly used in education, indicators to monitor their impact and demonstrate accountability to funding sources and the public are ever more needed. In this article we will see ICT in education, its integration, and impact of ICT and ways to use ICT judiciously.

2. What is ICT?

ICT is an abbreviation that stands for: 1.Information-it covers the topics such as meaning and value of information; how information is controlled; the limitations of ICT; legal considerations; how data is captured, verified and stored for effective use; the manipulation, processing and distribution of information; keeping information secure and designing networks to share information. 2. Communicationnetworks of sending and receiving equipment, wires and satellite links. (a) Internal networks-Local Area Network (LAN) (b) external networks-Wide Area Network (WAN). 3. Technology-collection of techniques, knowledge of how to combine resources to produce desired products, to solve problems, fulfil the needs or satisfies wants; it includes technical methods, skills, processes, techniques, tools and raw materials.[2]

ICT in Teacher Education

Traditionally learning was a linear processwhich was based on deficit model of student, and process of transfer, and reception was individualized and facilitated by division of content into small units and, but advent of ICT has transformed the concept of education.In the past 10 years, online instruction has become very popular. Technologyencourages teachers to take on new and expanded roles, both inside and outside theclassroom. Within the classroom, technology maintains student-centred instruction where the teacher assumes the role of trainer or facilitator while students work collaboratively.While outside the classroom, technology supports teacher collaboration. Instead of working in isolation, teachers can work together on programs that they can help find solutions to problems, act as peer advisors to provide information and feedback, and collect data to test hypotheses.

It is for the teacher to determine how ICT can best be used in the context of culture, needs and economic conditions. Good teaching is not simply adding technology to the existing teaching and content domain rather it should cause the demonstration of new concepts and requires developing sensitivity to the dynamic, transactional relationship between the three components of knowledge: Content, Technology and Pedagogy.

Significance of ICT Integration in Teacher Education

Theoretical knowledge of technologies in education is not sufficient unless anduntil the practical aspect of teacher training is not adopting ICT. A successful teachers training program is one which develop teaching skills and capacityto face the challenges in present scenario. ICT use is not to make content attractive,but it is used to organize, share and collaborate the information and communicate in aneffective manner making teaching learning more productive. To prepare students for a multiple career life-path, we will need teachers capableof developing learning plans for students who are ready to fulfill their capacity as a wholeperson adaptable for whatever career paradigm that will emerge. Research studies indicate that educational use of ICT is challenging for teachers(Hammond, et al. 2009).[3] ICT is

expected to change teachers' pedagogical practices; meanwhile integration is seen to be based on teachers' attitudes and knowledge (Cullenet al. 2011).[4] Attitudes and pedagogical beliefs are traditionally examined as teachers'individual perceptions and individual choices (Sang, et al. 2010)[5].

Integration of ICT in Teacher Education

Integration of ICTneeds basic digital literacy skills ,ability to manage information, structure problem tasks,design ICT-based learning resources and environments use ICT to support the development of knowledge creation and critical thinking skills of students, support students' continuous reflective learning, and create knowledge communities for students and colleagues, create opportunities to deploy innovative teaching methodologies, enable better management of classroom and sharing of resources among institutions thereby reducing the cost of implementing ICT.

Role of teacher and integration of ICTs in teaching-

The role of teacher is now as good facilitators therefore, he has to provide proper environment for students to find out the solutions according to their own observation using technological resources. Teachers can organise activities for students to integrate ICT like Simulations, Guided instructions, Cooperative learning, Enrichment, creating online classrooms, etc.

Steps taken to integrate ICT by the Government[2]-

Eleventh Five- Year Plan (2007-2012) importance of ICT in education has been emphasized. "National Curriculum Framework"(2005) emphasized the judicious use of technology to increase the reach of educational program , facilitate management of the system as well as address specific learning needs and requirements. Government of India has set up a national task force on information technology and software development to universalize computer literacy. Intel Teach to future program is a world wide effort to integrate technology in classroom

Positive impacts of ICT in education

ICT play a role on three fundamental aspects of education: access, quality and cost. It has advanced knowledge by expanding and widening access to education, by improving the quality of education and reducing its cost while extending the education to the remote areas through Virtual, eLearning, online and distance learning. ICT in education has provided more employment opportunities within the education system directly and indirectly through academic and non-academic staff.

Moursund (2005) stated that ICT brings some very powerful aids to translating theory into practice. Two of these aids are computer-assisted learning and distance education[6]. These days, computers with Internet connectivity have become common household items. Students often have access to: pure educational, designed specifically to provide instruction to help the user learn; communication tools and reference materials.

Other ways in which ICT can be used in education as stated by Ikelegbe (2006) in Okeh&Opone (2007)[7] include:

1) Supports conventional classroom work; the teacher could ask his/her students to use ICT approach;
2) Helps in the design and development of learning materials. A lot of materials can be downloaded from the Internet. Such materials must however be adapted to suit the specific instructional objectives;
3) Accesses electronic teaching materials such as books, journals. These can be accessed, stored and analyzed by the use of ICT;
4) Accesses virtual library "stocks" electronic versions of books' journals;
5) Provids access to the world of resources especially in electronic form;
6) vi.Plays a key role in educational administration.
7) Facilitates independent study and individual instruction especially on the open distance-learning programme;
8) Makes learning more vivid and engaging;
9) Assists the teacher in assessment and testing; and
10) Brings a permanent solution to brain drain problems as we now live in a global village.

Online learning allows access to education to larger number of students. The constraints of the face-to-face learning experience, that is, the size of the rooms and buildings and the students/teacher ratio are eliminated. With ICT, a lesson can be reproduced and communicated very cheaply via different means like the digital recording. It presents new opportunities for students having difficulties with this traditional format.

Negative impacts of ICT in education

One of the key impacts of ICT in education is moral decay. These include access to inappropriate material, violation of personal privacy, and dissemination of harmful or abusive material.Students, and sometimes teachers, can get hooked on the technology aspect, rather than the subject content. Social media networking sites can be a distraction to living and learning in the real world. Advertisers take advantage of the big data that exists in the interface of users of these networking sites and market their various goods and services to the users.

There are other large costs involved and poorer students and educational establishments may end up being disadvantaged. This is often referred to as being a factor in the digital divide.

There are also some legal and ethical issues with the use of ICT in education like:Stealing software or the use of unlicensed/pirated software. Making illegal or unethical use of ICT facilities such as cyber crimes and hacking. Damaging, destroying, stealing, and illegally using ICT facilities and files that belong to others.

Ways to minimise the negative impacts of ICT

In the educational institutions, the teaching academic staff most cases understand the legal and ethical issues and these can be minimized by:

• Modelling and teaching legal and ethical practice related to technology use. Students should adhere to codes of practice and apply strategies to conform to intellectual property and copyright laws including identifying and

acknowledging the owner/creator of digital sources, and citing references following agreed conventions

- Applying technology resources to enable and empower learner with diverse backgrounds, characteristics, and abilities.
- Promote safe and healthy use of technology resources. They should share materials responsibly respecting self and others when working online.
- Facilitate equitable access to technology resources for all. Avoiding using technology to break the law.
- Teachers with no practical preparation or experience in social, ethical, and legal issues surrounding digital technologies create another area of concern.To cub this, teacher training programs need to ensure that teachers are prepared to use technology, especially the Internet, in a safe and ethically responsible manner. This way, teachers can then lead students on exciting, educationally enriching learning adventures with the help of technology.

3. Conclusion

The benefits of ICT on education is definitely more than the shortcomings ICT, therefore it can be said that ICT has a positive impact on education but nonetheless the manner in which the subject is taught has a greater effect than the mere use of ICT. Likewise the attitude of the educational establishment and the attitude of society and government has a large impact of how ICT is perceived and thus how effectively it is used. Teachers in India need to be prepared to face the challenges of 21st century for imparting the new age education; hence education program in India should integrate ICT component in such a way that teachers are enabled to face the new demands in their profession. Efforts must be made by the educationist to change the process of teaching-learning in order to prepare the students to adjust themselves to the society; this could definitely create a new learning environment and information rich society.

References

[1] *Information and Communication Technologies in Teacher Education. A Planning Guide: UNESCO Publication)*

[2] (Fathima, S. (2013). Challenges of ICT in teaching learning process. *International Journal Of Engineering And Science*, *2*, 51-54.)

[3] Darling-Hammond, L., & Richardson, N. (2009). Research review/teacher learning: What matters. Educational leadership, 66(5), 46-53.

[4] Cullen, T. A., & Greene, B. A. (2011). Preservice teachers' beliefs, attitudes, and motivation about technology integration. Journal of Educational Computing Research, 45(1), 29-47.

[5] Sang, G., Valcke, M., Van Braak, J., &Tondeur, J. (2010). Student teachers' thinking processes and ICT integration: Predictors of prospective teaching behaviors with educational technology. Computers & Education, 54(1), 103-112.

[6] Olaore, I. B. (2014). The impacts (positive and negative) of ICT on education in Nigeria. Developing Country Studies, 4(23), 154-156.

[7] Okeh, O. D., &Opone, M. C. (2007). Information and Communication Technology (ICT): A veritable tool for national Educational Growth. Journal of Academics, 2(3), 234-246.

[8] Bhaskara Rao (2004). Methods of Teaching Educational Technology. New Delhi: Discovery Publishing House.

[9] Biswas, P.C. (2002). Building ICT skills for Quality Teacher Education. University News, 40(50), 16-22.

Author Profile

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