

Role of ICT in Professional Development of Teachers

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Abstract

The most striking and latest innovation in the field of education is the integration of Information and Communication technology in education. The educational institutions, administrators, and teachers should cope with the suddenly increasing demand for information and skills. One cannot depend on only the same big blackboards, an overhead projector and video-graphed concepts as either because the transaction of curriculum is poor or the tools used in its transition lack application and skill. Technological resources that are available for teaching and learning specially include computer hardware and software, in addition to the growing range of peripherals, which include video, CD-ROM and electronic communication media. The rapidly changing nature of computer technology continues to expand the range of resources available for any subject- specific learning. Educators must be imaginative, flexible and willing to renew their vision of teaching and learning if they are to fully realize the potential of educational technology.

The quality of teachers and their continuing professional education and training remain central to the achievement of quality education. Yet today, the number and quality of teachers, teaching practice and teacher education are facing serious systemic challenges across the world. The situation must be redressed at a time when the world needs an estimated 9.1 million new teachers to reach internationally-agreed education targets by 2015. UNESCO believes that these challenges can be addressed through a holistic, systemic approach to education and teacher development systems in ways that also incorporate the enabling role of ICT. UNESCO facilitates initiatives related to the integration of ICT in teacher education by supporting existing teacher development communities of practice, multi-stakeholder partnerships, capacity building of policy-makers and the development of international standards on ICT competencies for teachers.

Advancement in computer technology has contributed to the overall development of people across the world. Now, everybody talks about the revolution of computer technology, the role it is playing and also it is going to play in the future. Computer could replace many of the functions performed by the human beings. The emerging computer technology is gradually covering the entire span of human activity. The role of computer in teaching has more than one facet; they perform the vocational and pedagogic roles. As computers are providing every aspect of life, computer knowledge is essential for various professionals including teachers. The greatest contribution of technological development is the invention and use of computers in various areas. There is a lot of scope to yield good results or outputs through the use of computers in the field of education. The use of computers in the education improves the quality of education and brings about desirable changes –both qualitative and quantitative. Several researches have documented the importance of the use of computers in class room instruction and have acknowledged the success of using technology for education. Though it is obvious that the teachers at all levels starting from primary to higher education need to have the knowledge of using computers, one should accept that the teachers working in the area of teacher education need to imbibe the skill of using computers more than anybody else in educational setup because these teachers are the persons who mould the teachers and the input in the process of education. Therefore it is imperative to train the teachers in the use of computers and other ICT gadgets to get good results in the field of education.

What we understand from ICT

Information and communication technologies (ICTs) is the catchall phrase used to describe a range of technologies for gathering, storing, retrieving, processing, analyzing and transmitting information. Advances in ICT have progressively reduced the costs of managing information, enabling individuals and organizations to undertake information-related tasks much more efficiently, and to introduce innovations in products, processes and organizational structures. ICT has revolutionized the function of developing, acquiring, testing, implementing and maintaining electronic systems, these systems include data bases, applications and procedures to support the business needs of the organization in the capture, storage, retrieval, transfer, communication, process and dissemination of information. It also includes the evaluation, acquisition, tendering, leasing, licensing and disposal of software and hardware.

Information and communication technologies (ICTs) are widely believed to be important potential levers to introduce and sustain education reform efforts. Despite evidence of increasingly widespread use of ICTs in education initiatives around the world, however, there is little guidance available for policy makers and donor staff specifically targeted at countries contemplating the use of ICTs to help countries meet the education-related Millennium Development Goals.

Despite over ten years of investment in ICTs to benefit teaching and learning in many developing countries, little is known about their substantive impact on teaching and learning processes and outcomes. Indeed,

1. The impact of ICT use on learning outcomes is unclear, and open to much debate.
2. There is an absence of widely accepted standard methodologies and indicators to assess impact of ICTs in education.

3. There is a disconnect between the rationales most often put forward to advance the use of ICTs in education (to introduce new teaching and learning practices and to foster 21st century thinking and learning skills) and their actual implementation (predominantly for use in computer literacy and dissemination of learning materials).
4. There is very little useful data on the cost of ICT in education initiatives, especially those attempting to assess total cost of ownership, and guidance on how to conduct cost assessments.

Future of ICT in Teaching Profession

The role of interactive multimedia in a perspective where learning is part of schooling, working or just living. ICT also includes web TVs, Net PCs, and Web-Based Education that offers accessibility, flexibility and innovativeness in teaching and learning. ICT integrated teacher education is more important to Indian education system that is committed to maintain global partnership as well as leadership in knowledge-based society.

Prof Ram Takwle (2003) says about IT driven education: “They are changing the methods of content generation, content storage, content packaging and content delivery and hence offer a new paradigm of education.” These multimedia programs and packages are also intended to supplement the real classroom activities and help their easy assimilation. ICT especially in the 21st Century context of teacher education fulfills the following objectives.

- I) It envisages excitement to the learner’s eyes, ears, and more importantly the head.
- II) ICT fulfills the needs of learners by providing items and packages of higher standard and interest.
- III) It helps in transforming the definition of literacy, learning and knowledge; a definition that increasingly includes multimedia digitized literacy.
- IV) Multimedia provides a kind of control over the learning environment to the pupil teachers and they experience learning from their failures and ill practices.
- V) ICT facilitates the learner to have control on lesson, pace the sequence, content, feedback, which in turn enhances the efficiency of learning.
- VI) Unlike books, it is interactive in nature and creates motivation and interest among the learners, in turn meeting the individual unique needs effectively and efficiently
- VII) Develops the ability of self-learning and interacting individually, as the learner attains vast experiences effectively, efficiently and expeditiously,
- VIII) ICT-empowered simulated situation minimizes dangers in the real world’ e.g. practical in science, pilot training driving etc.
- IX) ICT is a powerful new development with ambitious role in teacher education, Digital and Internet.-based multimedia transforms the present trend in the field. It takes just a computer to play multitude of media enabled programs and packages.

ICT - Teaching and Learning:

The Information and communication technology in education is in a nascent stage especially in the developing countries. The general notion of technology in teaching and learning is reflected in the design, preparation and production of textbooks and other instructional materials for schools. The national council of educational Research and training (NCERT), New Delhi has taken up a major role in this gigantic task. The major role of ICT in teaching and learning is the presentation and use of teaching aids. The quality of teaching aids in recent times has improved. The variety of teaching aids ranges from a two dimensional chart to a three dimensional model. Further the introduction of electronic media has brought a third dimension and movement teaching aids in education. Information and communication technology helps to develop simulated programmes in the class room which are designed to depict the real world happenings without the danger, expense or time needed to experience the actual event. They provide continuous feedback to the user regarding the status of the event and the options available (Saltinski , 1981). When it is considered that learning to read is a process, it only makes good sense to teach reading in a meaningful context. The learners are joyful consumers when the given materials are written at their instructional level. Simulations are highly motivating since there is a continual input required of the user. Simulation permits learning experiences that are simply beyond the capability of textbooks besides involving the learner in the instructional process and thereby permitting learner to be internalized through continuous practice in life like situation (Hennery and Boysen, 1979).

In the communication technology, at present, the wealth of information that is being transferred across the internet is impressive. Various mechanisms, the World Wide Web (www) browsers, email and news groups have been established to allow people to asses, send or retrieve information across the world. The internet browsers like Netscape and MS internet explorer enable searching, viewing and displaying the information to any person interested in anything.

ICT - The Professional Development of Teachers

The Information and communication technology represents one of the current applications of technology in teacher education. “The Information and communication technology (ICT) is the scientific technological and engineering discipline and management techniques used in information handling and processing, their application; computers and their interaction with men and machines and associated social, economical and cultural matters” (UNESCO). In 1998, the UNESCO in its world education report “teachers and teaching in a changing world” described the radical implications of ICT in the conventional teaching learning process. Now in the present situation, ICT has become an important and integral part of the curriculum of teacher education. By using ICT technology such as computer, laptop, digital camera, video, internet, websites, CD ROMs, DVDs, application of software such as word processing, spread sheet, e-mail, digital libraries, computer mediating conferencing, video conferencing, projectors etc. We can overcome all barriers in communication and instruction. ICT can be used as a tool for training and support of teachers, regardless of geographical dispersion. Therefore, the challenge for teachers and teacher education institutions has been to create a new generation of teachers capable of employing

a variety of technology and tools in all phases of academic, administrative, research and extension functions. ICT is extremely useful for professional development of teachers and helps the teacher in the following ways:

1. 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.
2. In OECD experience, the use of technology in everyday teaching and learning activities appears to be more important than specific instruction in “computer classes”. While the development of technology skills is seen to have a role in the teaching and learning process, it is more important as an enabler of other teaching and learning practices, and not too important in and of itself. Schools that report the highest levels of student ICT-related skills and experience are often not those with heavy computer course requirements, but rather ones that made use of ICTs on a routine basis throughout the teacher professional development and the teaching and learning process.
3. Effective ICT use in education increases teachers’ training and professional development needs. However, ICTs can be important tools to help meet such increased needs, by helping to provide access to more and better educational content, aid in routine administrative tasks, provide models and simulations of effective teaching practices, and enable learner support networks, both in face to face and distance learning environments, and in real time or asynchronously.
4. Effective teacher professional development should approximate the classroom environment as much as possible. “Hands-on” instruction on ICT use is necessary where ICTs are deemed to be vital components of the teaching and learning process. In addition, professional development activities should model effective practices and behaviors and encourage and support collaboration between teachers. On-going professional development at the school level, using available ICT facilities, is seen as a key driver for success, especially when focused on the resources and skills directly relevant to teacher’s everyday needs and practices.
5. ICT enriches teaching by enhancing the initial preparation by providing good teaching and training materials, simulators, recording and feedback mechanisms.
6. ICT has removed the barriers of space, time and place between teacher and learner.
7. It has established a healthy and interactive relationship between teachers, schools, institutions, and universities and enabled teachers to expertise rich resources in cyber space.
8. In OECD (Organization for Economic Co-operation and Development) countries, research consensus holds that the most effective uses of ICT are those in which the teacher, aided by ICTs, challenge pupil’s understanding and thinking, either through whole-class discussions

or 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.

9. Pedagogical practices of teachers using ICTs 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.
10. The cost of teacher training has been reduced by the didactic software and intelligent tutoring systems.
11. ICT provides lifelong professional development by providing courses in a virtual situation, training in demand, orientation and refresher courses through video conferencing and online.
12. By the exchange of materials through virtual communities, sharing of ideas and experiences and collaborating on projects the ICT can revolutionize the whole teaching profession.

Conclusion

Teacher is considered to be the architect of the nation. In other words, the future of the nation lies in the hands of teacher. This shows the importance of teacher. One can realize how important education is which makes one a teacher. Teacher education is looked after by a systematic operation of various agencies involved in it. In our country, no system is free from problems; teacher education is not an exception to it.

In present scenario, teachers need to help their students in: how to learn, how to grow in future, how to develop study skills, how to conduct fundamental research, how to examine, evaluate and assess information and also how to question and then dismantle unauthentic structure of knowledge and cognition if need be. This is necessary if the teachers really want to survive in the ICT savvy world of education. All these expectations may be met only through need-based, goal-oriented and meaningful in-house discussion, conferences, symposia, workshops, refresher and orientation courses, crash courses, capsule courses and subject-based courses, interdisciplinary and holistic approaches to education and quality research and by enriching the existing libraries and making use of the user-friendly ICT with contextually appropriate and firm pedagogical scaffolding. The teacher educators and individual teacher ought to sincerely and persistently work hard toward this goal.

By the latest developments in the information and communication technology the role of teacher in the process of teaching and learning has increased many fold and has become more complex as such teachers are to equip themselves with latest technology then only they cope up the new challenges in the field.

References

Ashok Nanda, “Information and communication technology” First edition, NGO Prints, Calicut, 2005.

- Amareswaran and Singh S.P. (2011). "Teacher Education through Open and Distance Learning--Information and Communication Technology Based Pedagogy Integration." *TechnoLEARN: an International Journal of Educational Technology* 1.1
- Dangwal, K.L., and Singh S.P.. (2012). "Enhancing Spiritualism in Virtual World." *Turkish Online Journal of Distance Education* **13**(2): 76-83.
- Padhan, A., and Singh, S. P. (2010). Culminating Professional Ethics to Reduce ZPD Gaps in Teacher Education. *Learning Community: An International Journal of Education and Social Development*, **1**(1).
- Mirja, S., and Singh, S. P. (2014). Effectiveness of Student Support Services Provided by Indira Gandhi National Open University (IGNOU). *Mediterranean Journal of Social Sciences*, **5**(26): 124.
- Farrukh, S., and Singh, S. P. (2014). Teachers Attitude towards Use of ICT in Technical and Non-Technical Institutes. *Journal of Educational and Social Research*, **4**(7): 153.
- Singh, S. P., and Dangwal, K. (2011). *Innovative Practices in Education*. New Delhi Publishers
- Dr .S. Arulsumy, Dr. P. Sivakumar, "Application of ICT in Education" Neelkamal Publications Pvt. Ltd. Hyderabad First Edition 2009.
- Myrtle Joyce Shobha D' Sousa, "Perspectives on ICT Integrated Approach at the Teacher Education Level" *EDUTRACKS*, **11**(5): 11-16
- <http://cst.unesco-ci.org/sites/projects/cst/default.aspx>.
- Pandey, V. C., "Information and communication Technology", First Edition, **4**, ISHA Book, 2003.
- Kamat, V. " ICT initiatives in Teacher Education", *University News* **43**: 103-108.
- <http://stone.undp.org/undpweb/eo/evalnet/docstore3/yellowbook>.
- Venna S.K (2010) "Teacher Education some qualitative consideration", *Shikshak - ShikhaShodhPatrikavol* **04**(1): 10.