

ICT-Pedagogy as a Strategy to Improve Quality of Education: Barriers and Effective Practices

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Abstract

Over the past decade, edification has been improved by use of abundant technologies in particular use of Information and Communication Technology (ICT) in the Higher Education and successfully adoption of ICT to pick-up student-centric learning method has become a key apprehension in researches. Researchers found that training and teaching is becoming one of the most exigent professions in the entire world as students demanding lecturers to be trained and employ contemporary technologies in their teaching. ICT can provide more adaptable and effective practices for proficient expansion for educators and can connect to the teacher community of the entire earth. There are few issues also arises with the adoption of ICT for example evaluation of student learning, which is an elementary and vital aspect, has challenges in an online environment. This paper analyses and organizes an assortment of methodologies found in uses of ICT to teach better and support the learning environment, within the context of the frequently shifting theories. Based on the analysis, it talks about novel possibilities and challenges to teacher training and professional development. It also expresses that how ICT can be implanted in higher education teaching environment. It concludes with discussion of rising issues in integration of ICT with teacher and student learning.

Keywords:

Information and Communication Technology (ICT), Instructional Technology, Online Instruction, Teaching Effectiveness, Online Assessment, ICT Pedagogy

Introduction

Applications of Information and communication technology (ICT) are implementing in Teaching-Learning Methodology as a tool, but it is not a universal remedy for all problems arose in this. Latest technologies are vital gizmos for scholarships. Effective use ICT is a need and to instigate this, educators need better vision of the potentiality. [1] ICT can provide more adaptable and effective practices for proficient expansion for educators and can connect to the teacher community of the entire earth. There are few issues also arises with the adoption of ICT for example evaluation of student learning, which is an elementary and vital aspect, has challenges in an online environment.

Due to an increased demand and need for online courses and multimedia based learning, educators should have to update themselves and has to involve latest technology in their teaching methodologies. This is not a challenge but a

requisite in the society for the society to add technology in knowledge to become a better teacher [10].

Now, technology of teaching is also seeking for new heights, and role of a teacher is expected as a facilitator rather than a dictator or lecturer. A meaningful learning is expected, by which a learner can use his/her brain and can use their local environment to learn the things. ICT is reached most of the areas, regardless of rural or urban or tribal. In real-life working environment a person has to search and think for the solution of the issues arose in their functioning. That is why teaching methodology should be as, by which a learner could become better solution-provider not only a book-worm. Update of knowledge through books and other resources and continuous development of skill is the motive of learning.

Prevailing innovation in technologies have offered new promises to education profession, by placing their tools in teaching [11]. The educators has to learn these by continuously update themselves in acquiring knowledge and skills [2].

The question is what are the ways to updating a teacher as a learner and then a facilitator? And the answer is ICT, which is undoubtedly very useful to accomplish this. ICT not only deliver the instructions, but also create learning process also. To establish an international group of educators and to develop professionally, there's a range of ICT options are available. One may use tools for Conferencing, other may use social media. One may use blogs and forums and other may free encyclopedias to update. In fact, ICT is capable to provide many adaptable, scalable, effective and friendly methods for al-round development for educators and to change the traditional architecture of the learning methods to design more effective pedagogy to improve overall quality of education. This paper glares at a range of slants in ICT-Pedagogy which can integrate with teacher learning, what are barriers and what are the effective practices.

Vital range of modes for Teacher's Learning

Latest studies point-out that ICT can create novel ways to become a better teacher by learning new student-centered instruction methods and in developing their skills by creating online community and participating blogging/forum activities [5]. However, few renowned educators notified that they have never had an ample guidance to organize themselves in using new technologies in proper manner in their profession, but all of they were agreed that ICT can become a great too for enhancing quality of teaching and learning.

Therefore, an argument of latest research issues in context of application of ICT applications in teacher learning is necessary and the methods employed in various ICT teacher learning cases have to be verified.

A teacher may use ICT in the following ways:

- ICT to facilitate the learning
- ICT as a single delivery entity
- ICT as a component of system
- ICT as a main component of system

ICT as a main component of system

Previous ICT programs were taught as the main component of the syllabi, which emphasize on opting for apposite tools and supported students to use the same and to develop new means to facilitate teaching and further evaluating performance of the scholars.

The curriculum has more than one ICT courses for students and teachers, which covered word processing, Slide-Presentation preparation, Internet, and other skills. However, covering of learning, thinking and the effective use of instructional technologies in the higher-education and schools, is required in Indian perspective. A model to plan instructions, selection of contents, evaluation of students, arrangement of resource materials to encourage creativity and complex thinking through project based activities is also a must-need.

A case is studied in a local teachers' training college, which is graded "A" by NAAC and the same is working on a strategy for IT in Education to improve its quality. To execute their strategy, the college have developed and implemented a new ICT plan, which identified following areas that needed to be changed: 1. Curriculum, 2. Infrastructure, 3. technology, 4. concepts of Human Resource and 5. system

The curriculum was revised to include basic ICT courses for students and teachers. Further few workshops have been conducted to understand Internet, e-Learning, e-Library, and few other contents. Most of the workshops were funded by Government agencies.

Meanwhile, Desktop and Laptop PCs along with printers have been procured for computer laboratory and administrative office to improve infrastructure. They started working on computer systems to adopt the technology. Appreciation is also given to those employees and teachers, who have adopted technology faster.

Ultimately, they have embraced a system, which was fruitful and recently they have launched a website for online admission like Pre-B.Ed. examination, so that their reach can became state-wide.

As shown in this case, this approach of using ICT as the main content of system to emphasizes on development of basic ICT skills, design and development skills, and pedagogical strategies. When interviewed about the system, teachers and other employees at that college agreed that the course provided useful strategies for the use of ICT in their learning technology and they have integrated ICT-pedagogy in the practicum.

ICT as a component of system

In this method, the teachers integrate ICT into their training to facilitate some aspects of teaching. One case below shows a multiplicity of ICT can be adopted as a component of effective learning technologies.

A local K-8 school has added ICT for their teachers and administrators to update them aiming to start ICT for their students. They have used multimedia tools to help their teachers to better understand how technology can be integrated into their day-to-day working. The multimedia based educational library is made up of stories about teachers who are making significant and inventive handling of ICT in their instructional methods.

This library also contains videos to describe about technology may be used by teachers' in their classrooms. The examples of real-life

teachers could create a successful practice for their teachers. In this case, teachers could learn use of ICT by real process of ICT-integrated training.

ICT as a single delivery entity

In this approach, ICT is used as the key-method to provide learning of teachers and further deliver their lectures into class-rooms. There is no need of main ICT skill but it covers a range of applications developed and implemented. In the example below, the digital technology is frequently becoming the core technology of ICT-Pedagogy.

A local school has started coaching classes through various videos, for this they have procured monthly-payment based services through a nation-wide education content provider. They connect with Internet and start the content of subject/class of which batch is prepared. They don't need to explain anything, the videos are self-exploratory. They enrolled a limited number of students up to class 10th on a trial basis for the first year. The video has developed plus two level online academic courses for their students. The TLC is designed to train students to understand their curriculum well, whereas the first case of this paper is designed to prepare teachers to become online course instructors and to adopt a computerized system by the college.

ICT to facilitate the learning

Whereas the use of ICT as single delivery entity for delivering lectures by the teacher can be found limited (almost zero) in Indian context, particularly Internet and Web-based communication and other technologies, are being used by the teachers' to support their development and to maintain quality of pedagogy. Many schools and colleges have developed website(s) to provide online resources for teachers, students and the society, the concept is based on the assumption that update should be an integral part of daily practice and development activities should happen on daily basis. One case is discussed below.

A local University, which is also a social organization has adopted about 200 villages and they have created 10 community centers (each one for 20 villages). The university has started extension work through community learning for adult people by creating a studio in university and the lecturer started talking through video communication application. One lecturer could teach adult learners of 200 villages at once, by the use of ICT. They have used freeware software for communication. Another example is the UK Virtual Teacher Centre provides a "Career Development" area on its websites which provides a variety of learning and teaching resources and links to support teachers' continuing professional development.

One of the best cases is A-View, which is a communication software developed by Amrita University, Bangalore, is adopted by Ministry of Human Resource Development (MHRD), Govt. of India and IIT Bombay. They have started educating faculty through a project National Mission of Education through ICT. They have planned to educate as many faculty members of higher education in various fields of Research, Computer Science and other. The project is implemented and currently running successfully.

Discussions and Conclusions

This analysis of various cases of use of ICT in teaching and learning specifies that implementation of ICT in learning methodology is potential; however challenges are there in adopting ICT and professional development.

Government institutes and educators seem to cherish the magnitude of integration of ICT in education. In many cases, the national vision for ICT use in education has been integrated into learning methodologies. For example, IIT Bombay has successfully integrated the national vision toward ICT use in education through NMEICT project. Many other countries such as USA, UK, Singapore, Sweden, etc. have developed extensive online resources and encouraged active exchanges of new pedagogical ideas to upgrade teachers' knowledge and skills at the national or international level.

It is also observed in the analysis that various ICT-integrated learning environments have been created to provide better quality ICT training. As presented in this paper, teachers be inclined to integrate ICT in their teaching methods, if they experience ICT skills as a learner first. Learning methodologies in this paper show that many cases of adopting ICT into teaching practice is not just as component of the teaching but rather as an integrated learning environment to experience ICT-based pedagogies.

Therefore, the provision of opportunities for teachers to create and implement ICT-based instructional materials is suggested.

Another application of ICT in learning methodology is that it may create a world-wide network of educators and students, through social media and other resources, and this community can create miracles. Numerous cases analyzed to understand the impact of Internet-based learners' community which supports teachers to interact with domestic teachers as well as teachers in abroad. The same happen in case of students. Also, teacher-student interaction could also become more frequent due to use of ICT.

Issues are also found while analyzing the cases, few of them are:

- Such approaches should be cost-effective than traditional one.
 - Fee of computer use should be lesser and for public
 - Share Web-based resources and training materials with other teachers and institutions.
- Proper training and further support is vital for the adoption of ICT for learning, which may be ignored. It is useful to:
 - Employ a variety of trainer training methods, it may be done from online or offline workshops or online self-study programs.
 - Less experienced teacher trainers can also obtain help from their seniors.
- National and international partnerships across public and private sectors need to be formed in terms of sharing resources, information, and experiences.

- Legal barriers – e.g., classroom attendance requirement.

An organized teaching methodology is essential to meet the demand of today's students who want to learn through ICT. We need more studies comparing effectiveness and cost-effectiveness of different training approaches.

UNICEF's *Teachers Talking about learning* (<http://www.unicef.org/teachers/>) also illustrates the application to facilitate ICT training. It is designed for international alliance of teachers in developing countries. It offers a vast collection of articles on various issues, access to learning materials and links of other websites to promote discussions among educators.

More attention should be paid to specific roles of ICT in offering multimedia based teaching methodologies, to help in overcoming teachers' isolation, connecting individual educators to a bigger teachers' community, and promoting teacher-to-teacher association.

References

- Bowes, J. (2003). The emerging repertoire demanded of teachers of the future: Surviving the transition, retrieved, September 1, 20012, from <http://crpit.com/confpapers/CRPITV23Bowes.pdf>.
- Carlson, S., & Gadio, C. T. (2002). Teacher professional development in the use of technology. In W.D. Haddad & A. Draxler (Eds.), *Technologies for education: potential, parameters, and prospects*, Paris and Washington, D.C.: UNESCO and AED, retrieved April 25, 2005 from http://www.schoolnetfrica.net/fileadmin/resources/Teacher_Professional_Development_In_the_use_of_Technology.pdf.
- Collis, B., & Jung, I. S.. Uses of information and communication technologies in teacher education. In B. Robinson & C. Latchem (Eds.), *Teacher education through open and distance learning*, London: RoutledgeFalmer, 171-192.
- Fontaine, M. . Teacher training with technology: Experience in five country programs. *TechKnowLogia*, November / December, 69-71.
- Freeman, M. . Flexibility in access, interaction and assessment: the case for web-based teaching programs. *Australian Journal of Educational Technology*, 13 (1), 23-39.
- Haddad, W. D. . Is instructional technology a must for learning? *Techknowlogi.org*, retrieved, September 23, 2004, from http://www.techknowlogia.org/TKL_active_pages2/CurrentArticles/main.asp?IssueNumber=19&FileType=HTML&ArticleID=455.
- Jung, I. S., & Rha, I.. Effectiveness and cost-effectiveness of online education: A review of literature. *Education Technology*, July-August, 57-60.
- Jung, I. S. . Singapore's approach to preparing new teachers to use technology in the classroom. In J. Capper (Ed.), *Case studies of innovations in teacher training and technology*. Washington, DC: The World Bank, retrieved, September 20, 2004, from [http://www.the3tconnection.org/Singapore Printing Version.pdf/](http://www.the3tconnection.org/Singapore%20Printing%20Version.pdf).
- Jung, I. S. . A comparative study on the cost-effectiveness of three approaches to ICT teacher training. *Journal of Korean Association of Educational Information and Broadcasting*, 9 (2). 39-70.
- Pacey, L.. *Integration of information and communication technologies (ICTs) through teacher professional development: comparative analysis of issues and trends in seven APEC economies*, Canada: Judy Roberts & Associates Inc.
- Perraton, H., Robinson, B., & Creed, C. . *Education through distance learning: technology, curriculum, evaluation, cost*, Paris: UNESCO.
- Robinson, B., & Latchem, C. . *Teacher education: challenges and change*. In B. Robinson, & C. Latchem (Eds.), *Teacher education through open and distance learning*, London: RoutledgeFalmer, 1-27.