

Study on the Best Practices of ICT in Teacher Education Programs

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Abstract

The main objective of this paper is to have a detailed study about the best practices of Information and Communication Technology adopted by the higher education institutions in the Teacher Education. The Teacher Education is considered as one of the noblest education services as it paves way for the creation of the good people in the society. The Teaching profession is one of the noblest professions recognised and respected by the people in the society across the globe. The Teacher is known as a continuous learner as they often adopt the changes and ensure the quality education to the people demanding education in the society. The teachers are now changing their role from the general teaching to the role of a facilitator. The usage of the Information and Communication Technology has changed the way of teaching. It has also made the teacher's extension activities very simple.

Key Words: Best Practices, ICT, Smart Class, Technical Faculty

Introduction

ICT in education, in India has been developed, based on master plans by the Ministry of Information and Communication Technology. The Indian Government is highly focused in the concept of Digital India. Through the Digital India they are trying to bridge the conflicts like corruption in India. The first Master Plan was focused on the establishment of world-class ICT infrastructure in primary and secondary schools. The objective of the second Master Plan was to enhance the quality of education by integrating educational contents and classroom activities with a focus on teacher capacity development. In addition, the National Education Information System (NEIS) was developed for efficient management of all education-related administrative tasks within the framework of e-Government initiatives. The third Master Plan has focused on the creation of sustainable learning environments with ubiquitous learning and future education through different services including the development of digital textbooks. The use of ICT in education in India has been driven by a strong cooperation among three key players: Central Government – Ministry of Education, Ministry of Human Resource Development, Ministry of Information and Communication Technology- the National Institute specialized in ICT in education – India Education and Research Information Service and MHRD have been coordinating the processes from policy planning to implementation. As a government agency, Ministry of ICT has been playing an exclusive role in supporting and planning implementation of the national ICT policy. All states of the Indian Government have been implementing the national ICT policy at the regional levels.

Implementation of ICT Policy in Education:

National Digital Literacy mission was one of the unique initiatives made by the government of India to educate the Indians the Digital Literacy Skills. Many official works are being digitalized and the corruption

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is being curbed. The establishment of ICT infrastructure in schools was aimed to promote education equity by bridging the digital divide. The School Advancement Project, which included the establishment of school LANs, Session 3 Internet-connected multi media labs, provision of PC and information devices for classrooms, and personnel support, was implemented according to the first Master Plan. Since the mid-1990s, national initiatives for supporting ICT integration into the school curriculum have been gathering momentum. The projects ranged from educational content such as supplementary materials and educational software for the development of digital textbooks. Educational content, almost in full, has been provided and shared in EDUNET, and plays an important role in the curriculum integration of ICT. Since the late 1980s the Government of India has provided teacher training for both ICT literacy and integration purposes. The focus of teacher training, however, has changed over the course of the three master plans from computer literacy to curriculum integration. In addition, the Government has built the teacher training framework for ICT in education to meet the specific needs faced by teachers throughout their career. The new teacher roles and adequate ICT competencies should be taken into consideration for the future design of teacher training.

The information service system in education is comprised of three main groups: EDUNET (for teaching and learning), EMIS and NEIS (for administration and CHLS (for home learning). EDUNET was developed to operate and provide multi-media materials, instructional lesson plans and evaluation items according to school level. EMIS focuses mostly on collecting annual statistical data from educational institutions while NEIS manages and integrates personnel, financial, and school affairs within or between institutions, regional offices and the Ministry of Education. Swayam is an online platform which provides individual learning materials and online tutorial support, in order to bridge the education divide for after school private tutoring. These services are aimed to provide an effective environment, improve productivity and efficiency, and harness ICT in education, nation-wide for teaching and learning and administrative purposes. As e-Learning technologies become increasingly utilized for educational courses, issues related to standardization for reusability and inter-operability, assurance of quality, and prevention of adverse effects become crucial.

Therefore, national standards for e-Learning were developed, a prime example is the enactment of the India Educational Metadata (IEM). Furthermore, in 2008, it was proposed to the Joint Technical Committee (JTC) 001/SC36 of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) to integrate South national standards for e-Learning in international standards. To enable quality control of e-Learning, the E-Learning Quality Assurance System (EQAS) was established using such criteria as content, services and platform. To promote and ensure a safe and sound cyberspace in the educational area, MHRD set up the Education Cyber Security Center (ECSC) and implemented various e-safety and e-ethics campaigns, as well as additional training programmes.

Innovative Technologies and Resources in Education

Key Trends and Prospects for Partnership Monitoring and Evaluation Systems are vital for the diagnostics of the current status of the initiatives, evaluation of the outcomes and planning of the measures for further improvement. The overall scheme of monitoring and evaluation of ICT policy in education consists of measuring ICT in education for schools, ICT literacy tests for students, as well as an external evaluation of major national ICT projects. Beyond domestic implementation, the government has expanded its cooperation with the global community to reduce the digital divide through ICT in education. Experts from more than 80+ countries visit the Government of India every year to benchmark best practices in this sphere. The number of

requests for consulting projects for ICT in education through UGC and AICTE Grants and also through the companies' CSR funds, have increased considerably. The achievements of e-Learning and ICT in education policy are recognized, as a result of a solid legal framework, systematic implementation mechanisms, secured budget and support, timely capacity building, successful cooperation between public and private sectors, and an effective monitoring and evaluation system.

First, existing ICT infrastructure is getting old, its maintenance and renewal is very important. Technical personnel are needed at the individual school level in order to address this issue properly.

Second, teacher capacity building has always been considered to be an important factor for ICT in education. The new paradigm of education needs new ways of teaching and learning. However, as new media is created, teachers tend to be overwhelmed by the new technology. Because new media continuously emerges to support the new paradigm of education in the future, teachers need open, flexible, and creative mindsets for new ICT technologies. Accordingly, future directions for teacher training and development should include comprehensive topics, not limited to ICT technology, to develop innovative ways of teaching with ICT for future students and future education. Finally, teacher training for ICT in education should facilitate teachers' pedagogical mind and performance in innovative ways.

Third, though curriculum integration of ICT is not easy because it requires more than the quantitative use of ICT, it rather ensures quality use of ICT for meaningful education. Large amounts of digital educational content have led many teachers to use ICT for their teaching. Moreover, the recent development of digital textbooks has provided a great opportunity for curriculum integration of ICT because these are textbooks and much more than that. However, if digital textbooks are successfully integrated into regular curriculum and add value to traditional printed textbooks, school curriculum should be well understood by policy makers and developers. Also, promoting strategies and events for school principals and teachers should be considered. Still many teachers are not familiar with digital textbooks.

Fourth, information service initiatives can be provided in three ways. A separate venture has also been setup in the name of ICT Academy to skill and bridge the gap and to educate the ICT among the new users of the nation.

It is important to establish collecting, creating and sharing processes and an organizational structure for quality educational resources for teaching and learning. EDUNET has evolved from an educational portal to the national teaching and learning centre, which coordinates and facilitates the efficient collaboration between the Central Government and Regional Government. Services were developed to support after-school learning opportunity, specially focused to bridge the socio-economic divide among student backgrounds. Innovation of the national governance through the initiatives of e-Government can be formulated by participation of various stakeholders and beneficiaries. In accordance with the implementation of the information service system, it is essential to develop national standards for educational resources and an adequate quality assurance system. Since each country has its own context, the specification of standardization processes and quality assurance categories and guidelines can vary. As the monitoring and evaluation of national projects become increasingly important, the government should continuously enhance the efficient and effective monitoring and evaluate system to diagnose the current status, check the outcomes and improve ongoing initiatives. Lastly, national policy intervention should focus on reducing and diminishing disparities

among gender, region, and economic status to improve and achieve sustainable equity in the education sector through mobilization of public resources and establishment of public private partnerships. Though accessibility is one of the key issues in policy, especially for developing countries, the development of the social and cultural environment and soft – skill human resources such as digital literacy should also be considered.

Stages of Our Research Journey – So Far

The main purpose of this paper is to present and explain stages of our long journey of adopting different research strategies – from traditional quantitative research design, through qualitative strategies up to quite a new and promising methodology, not yet well established. It also proves that in our area many situations, standards and well-established methodologies do not help. The reason is that often we as researchers cannot enter a certain reality, observe certain pedagogical intervention there and examine it in a traditional way. We will characterize – in a bit simplified and shortened manner – seven research stages we have passed through during the previous ten years

It is an interdisciplinary approach, in which researchers and practitioners (teachers) try to build pertinent theories of learning through designing, developing, studying and refining interventions for learning in real settings. This research methodology is attractive to us because:

- It is empirical research – that is, we may apply correct scientific methods to get answers to questions which arise from observing the real world around us;
- It is educational research – its goal is to expand our understanding of the learning processes;
- It is research mediated by development – that is, we are applying a methodology, when the researcher actively enters the learning process, tries to better understand it and in parallel support and enhance it through developing his/her interventions.

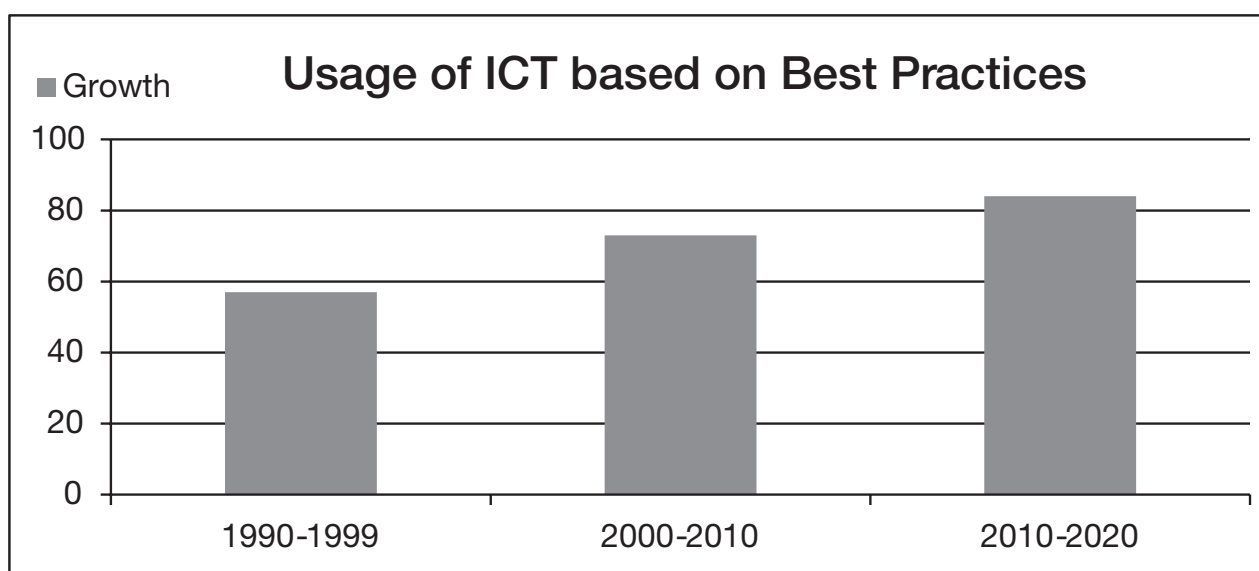


Fig: Usage Growth of ICT based on Best Practices Adopted

Conclusion

The aim of this paper has been to argue that if we want to (a) responsibly solve the problems, which extensively arise in the area of the Technology Enhanced Learning; (b) efficiently exploit the potential of new digital technologies, and also (c) minimize all possible dangers and various safety concerns-- we have to systematically engage high quality educational research. We need to learn how to apply well-established strategies; but in parallel with it we also have to discover, extend and develop other approaches – less established strategies, which are specifically well-suited for the questions typical in our field of interest. We have presented one such strategy, which had emerged already before ICT era, but has spread only recently. This approach offers us an educational design suitable for competent development of interventions for modern education. We should remember that ICT is not the goal for our educational research. What really interests us is the potential of new technologies for supporting modern education, for building new culture in schools. To discover and exploit it we necessarily need strategies, which will help us to find proper and valid answers to our emerging questions. And that is why we need quality educational research. In order to secure sustainable development of e-Learning and innovation in education, it is necessary to continuously pay attention to investment on ICT in education in all the areas.

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