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# Ict As A Tool For Capacity Building Of Teachers

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**Abstract:**
This essay focuses on enhancing teachers' capacities while considering ICT as a tool. This mainly focuses on the results of the debate at the Experts' Meeting and the training and professional development of teachers and facilitators in the effective use of ICTs for improved teaching and learning. This chapter, which proposes an action programme of seminars, workshops, expert meetings, conferences, and other activities aimed at developing national capacity in the effective use of ICT in teacher training and professional development in the region, weaves together threads from the previous paper. The UNESCO global viewpoints and the local needs of India were used to weave this report. The research local focus is demonstrated by the use of regionally relevant materials and circumstances, as well as by emphasising community support, particularly parental involvement, and local experts' insights. This article fits in well with UNESCO's overall goal of creating more just and equal societies. UNESCO has made it apparent that education plays a crucial role and that teacher preparation programmes and ICT are important. For a long time, UNESCO has actively promoted the establishment of procedures to make sure that national curriculum is more pertinent and adaptable to changing conditions, and that the advantages of new technology should be accessible to everyone.

**Keywords:** Teachers, ICT integration, capacity building.

## Introduction

Modern society has undergone technological advancements and social transformation that have fundamentally altered how people think, act, and live (Grabe, 2007). It has significantly altered how humans communicate with education all over the world and has integrated itself into the majority of learning activities. The current innovations have given teachers the tools they need to creatively learn these skills to set educational targets, design curricula and instructional strategies, deliver lessons, incorporate ongoing assessments, provide appropriate interventions based on student needs, and monitor progress. The use of technology in education has also been emphasised by India's New Education Policy, 2022. The policy calls for investments in digital facilities, the formation of virtual labs and digital repositories, the availability of digital instructional platforms and resources teacher preparation programmes for producing high-quality online activities, the conception and implementation of online assessments, and the establishment of standards for content, technology, and pedagogy for online teaching-learning.

With the aid of new inventions like digital books, multisensory classrooms, remote learning, virtual and augmented reality, and artificial intelligence, the education sector has undergone a significant transition globally. ICT is regarded as a crucial instrument for creating knowledge societies (UNESCO, 2003), particularly as a tool in school education that may assist in reorganising the academic system and procedures that lead to efficient education for all (UNESCO, 2003). Policymakers, instructors, and students have all made significant efforts to integrate technology into the learning experience in the Indian education sector. The teacher's views on the use of ICT as a pedagogical tool have also undergone a

significant change as a result of it. Indian educators have been making the most of numerous EdTech programmes developed by the federal and state governments, with the goal of resolving systemic problems with access, equity, and quality. Teachers' efforts to incorporate ICT into the classroom have improved the quality, accessibility, and cost-effectiveness of form of system to students as well as the teacher-student interaction. By offering venues for expanding access to top-notch educational resources and reaching more students, they significantly contribute to fulfilling the Sustainability Development Goals' aims.

## Several Best Practices for ICT Integration in Indian Classrooms

To ensure that instruction reaches a broad range of students, Indian teachers—from elementary school teachers to college professors—have been embracing the possibilities of digital and incorporating it into their classrooms. Here are a few of the best instances of Indian instructors embracing technologies to get over obstacles in the process of educating their students. These possibilities demonstrate the power ICT tools and platforms have to alter how the nation views learning. These stories were inspired by a study on technology in education that was conducted by the Central Square Foundation, the British Council, and TERI. It also included information from focus groups with Maharashtrian teachers who were tech-savvy as part of a Need Evaluation report on the DIKSHA platform.

**Ranjitsinh Disale**, An elementary school teacher from the Maharashtra district of Solapur has been utilising a variety of techniques to make his classroom instruction interesting. He made use of electronics to pique students' desire to learn and encourage frequent attendance. In order to supplement the syllabus and broaden the course, he introduced the use of Quick Response (QR) codes in the textbooks. In order to show the surrounds of the research labs and historical sites, he also employed virtual field tours. He connected with parents and controlled absences using tools like WhatsApp groups and Google SMSs. The use of QR codes in textbooks was acknowledged as a breakthrough by the Maharashtra government, who then implemented it for the state. The DIKSHA system at the federal level then embraced the idea. Recently, he was awarded the Global Teacher Prize 2020 for his work advancing learning.

**Shruti Sharma**, a teacher of high secondary school from Ghaziabad, Uttar Pradesh. In classes 10 and 11, she has been instructing English and life skills. On a platform provided by Generation Globe, she connected to courses in other areas of India and beyond through video conferencing and text-based conversations. Her students participate in cultural exchanges on several subjects. The fact that her school had a fully functional computer lab gave kids the tools and resources they needed to participate in teleconferencing. This encouraged her students to take initiative and increase their self-assurance.

**Mrunal Shinde**, a Maharashtrian primary school teacher. She began implementing creative techniques in her primary lesson to lengthen the pupils' attention spans. To facilitate interactions between her students and students from other nations, she employed the online network Skype. She also developed a quiz based on knowledge of these various nations using the Kahoot platform. She was able to blend arithmetic and history in an engaging way because to this. She also makes use of the Microsoft platform to communicate with and learn from other educators who are implementing various cutting-edge teaching methods in their schools.

**Premananad Edward Malyakkal,** Students at the graduate level are taught English by a college instructor from Calicut, Kerala. He employs technologies in a number of different ways to give and produce synopses of various literary genres. One of his efforts involves

using software that is mobile-friendly to create infographics with his students that summarise the main texts. He pinpointed the issue of students struggling to comprehend the challenging content. His goal was to use very basic and straightforward equipment to provide the most knowledge to the most amount of people possible. He imparts to his students the fundamentals of computing, including how to use word processing, spreadsheets, databases, and infographics. He utilizes Piktochart software and lets students experiment with various mobile device technologies.

**Suchi Dakoria,** a primary school educator from Gujarat's Surat. She dealt with the difficulty of keeping a portfolio of her students' work and keeping in touch with the parents on a regular basis. She began utilising the programme Seesaw, an online portfolio application (e-portfolio), as a potential remedy to attend to both of these needs at once. Audio, visual, and other types of media are all included in the portfolio. Parents were active in their child's platform advancement. Due to the constant maintenance of the portfolio rather than the hurry to complete evaluations only at the end of the year, it helped to lighten the workload of the teachers. This allowed the school and the parents to continue their frequent, efficient communication.

## Objective of the study

- To improve teachers' competence and confidence, through both pre-service education and in-service training, in order to fully integrate or infuse ICT in all aspects of the educational process and to transform the classroom from teacher-centred teaching to ICT-assisted interactive and independent learning;
- To identify, create, and disseminate regional, locally-specific pedagogies and models of technology utilization and technology-pedagogy integration in diversified instructional environments; and
- To develop and put into operation a regional online teacher resource base and a regional offline network of centres of excellence in order to share innovative practices and resources and to help in ongoing professional development using ICT for educational purposes.

## Situation analyses of national curricula

Conducting a scenario analysis of the educational curricula is a crucial and important step before starting a research project to increase national capacity in the efficient use of ICT in education. Information gathering for this kind of investigation often entails the following:

- the background to the national curriculum such as laws and policies relating to curriculum, underlying philosophies, and goals and objectives of education;
- organizational structures and designs underpinning the national curriculum;
- how the national or localized curriculum is implemented, including the initial and in-service training of teachers;
- what mechanisms are in place for monitoring, reporting and evaluating how the curriculum is being implemented;
- recent or ongoing curriculum reforms; and
- frameworks for revising or updating the national curriculum to take account of, for instance, new learning areas such as advances in science and technology, developments in ICT, preventive and health education, and the need for new literacy skills.

## Supporting programmes

Closely allied to the situation analysis of national curricula are several other

complementary programmes initiated by the UNESCO for Education that can support this Teacher Training Project for national capacity-building in ICT in teacher education. Three such programmes, described in Using ICTs to Upgrade the Quality and Reach of Education are particularly pertinent:

- Meta-Survey on Promoting the Effective Use of Information and Communication Technologies in Education. Insofar as this programme maps and analyses existing ICT initiatives in education in order to obtain an accurate picture of the current state of ICT use in education in countries of the region, it is useful in determining where countries are at in terms of ICT.
- Performance Indicators on ICT Use in Education. This programme aims to develop a set of indicators to measure ICT in education in order to provide a basis for policy planning and programme improvement. Such indicators will be useful in determining if and how ICT is effective in improving teaching and learning.
- Regional Clearing House on ICT in Education. This regional clearing house will play a key role in disseminating information generated from the Teacher Training Project and other related projects.

## Activities conducted

Let us now turn to a number of specific projects and activities that mounted under the umbrella of the wider Teacher Training ICT integration in teacher education. For the most part, each of the projects advanced below results in a particular product like a CD-ROM, resource kit, or publication. Within the development and dissemination stages of some of these products there are regional workshops and international conferences where prototype products are refined or adapted for local contexts. Besides these projects that have clearly defined product outcomes, there is clearly place, too, for other training activities in regional or subregional workshops, designed to achieve a multiplier effect to reach ever-increasing numbers of teachers. While such training activities are valuable, they are not further elaborated here.

Table 1 lists seven separate activities, each leading to the development of a specific product. Alongside each listed project is detailed certain strategies in the development of the product and its subsequent dissemination to the project.

**Table 1 Outline of activities and dissemination strategies**

| Activities | Strategies |
|---|---|
| 1 Compile *regional handbook* on teacher education and use of ICT based on project country experiences. | - Engage consultant to compile and assemble materials.<br>- Publish *regional handbook*.Translate *regional handbook*.<br>- Promote *regional handbook*. |
| 2 Develop *resource kit* for ICT in teacher education for use in the region. | - Gather videos, audio interviews, lesson plans.<br>- Assemble *resource kit* in convenient package form.<br>- Promote *resource kit*. |
| 3 Assemble set of *e-resources* for teacher educators. | - Engage consultant to assemble *e-resources*.<br>- Produce CD-ROM for *e-resources*.<br>- Distribute CD-ROM. |
| 4 Prepare *teacher standards* for competencies in ICT to guide implementation of ICT in teacher education in the region. | - Engage consultant to review *teacher standards*.<br>- Refine *teacher standards* at regional workshops.<br>- Adapt *teacher standards* for local contexts. |
| 5 Produce a *database of exemplary practice* in ICT across the curriculum for use in teacher education programmes in the region. | - Engage consultant to collect and review instructional materials.<br>- Conduct regional workshops.<br>- Produce and distribute learning materials on CD-ROM. |
| 6 Design *prototype course units and modules*. | - Engage consultant to review available materials for pre-service and in-service programmes.<br>- Conduct workshops to refine and adapt units and modules.<br>- Produce and distribute prototype units and modules on CD-ROM. |
| 7 Progress exchange of information and networking by establishing a *website* to strengthen regional co-operation in use of ICT in teacher education. | - Establish a *website* for this project.<br>- Promote the *website* as a means of communication between project countries. |

Outcomes of the study

The outcomes for each of the seven activities listed in Table 1 are expressed in the left-hand column in terms of specific products that the project is expected to produce:

- a regional handbook on teacher education and use of ICT;
- a resource kit for ICT in teacher education;
- a set of e-resources for teacher educators;
- teacher standards for competencies in ICT;
- a database of exemplary practice in ICT across the curriculum for use in teacher education programmes;
- prototype course units and modules;
- a website to exchange information and strengthen regional co-operation in use of ICT in teacher education.

The development of the guidelines and standards for competencies in ICT and modules are conducted by using a team approach. A group of teacher training experts are contracted to develop guidelines and standards for competencies in ICT and modules.

Project objectives – When planning each project, the objectives should have the following SMART characteristics: In other words, each project should aim for specific outcomes with clear measurable criteria; outcomes should be attainable within a reasonable timeframe and budgetary constraints; and outcomes need to be realistic and timely, that is, appropriate for the region.

Implementation strategies General strategies that might be adopted in each project to obtain the desired specified outcomes. Strategies involve four steps: **S**pecific; **M**easurable; **A**ttainable; **R**ealistic and **T**imely.

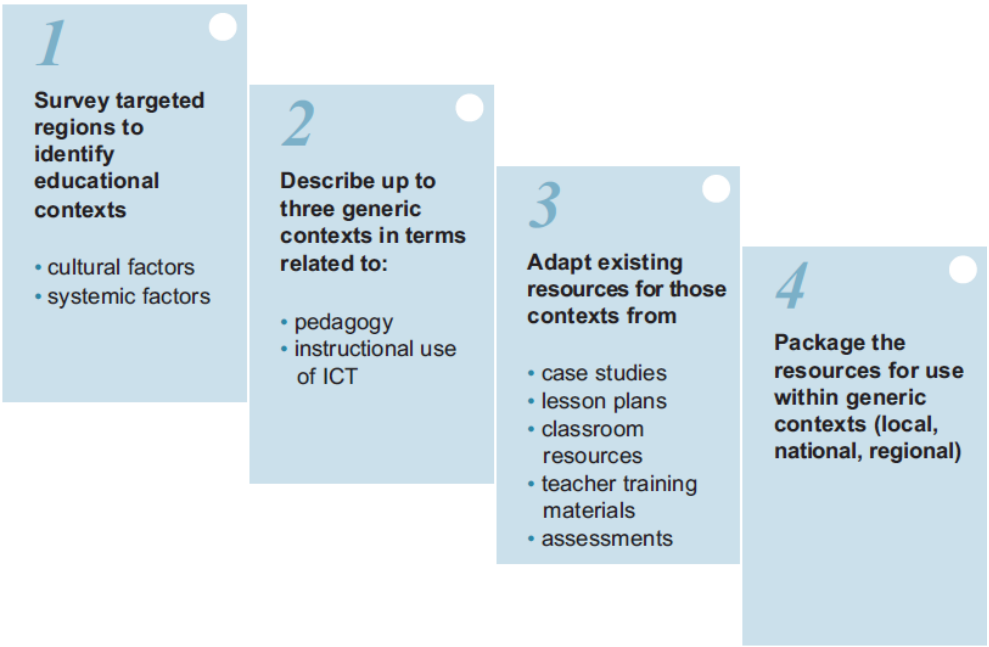


**Figure 2 Implementation strategy for each project**

## Evaluation and monitoring

Built into the development activities for each suggested project above is a progressive refinement of the resulting products as these are modified and adapted for use in different local contexts by successive groups of experts. This progressive refinement and adaptation is akin to formative evaluation. It is useful also to maintain a continuing monitoring of each project to ensure that the specific objectives are addressed: in short, to ensure that the project

stays on target. Such monitoring is commonly overseen by a steering committee.

As well as formative evaluation, funding bodies often require some kind of summative evaluation of projects. It is useful, then, to build such evaluation into each project at the beginning, and appoint an evaluation expert who is independent of the steering committee, but at the same time has background knowledge of the overall Teacher Training Project, its aims and objectives, and some familiarity with teacher education in the India.

## Conclusion

It is usual in projects of the kind suggested above to establish a steering committee for each designated project. The membership of each steering committee might comprise as few as three or four members. One or two of these would normally be permanent staff of UNESCO with responsibility for budget. Additionally, one or two external members might be co-opted because of particular expertise in the project proposed. The purpose of each steering committee is twofold: first, to ensure that the project is on track and completed in the specified time; and second, to be available as a sounding board for those who have the task of implementing the project. A project steering committee usually also checks that other evaluation criteria are met, such as, for example, ensuring equitable access by all to quality education, suitability of resources and training materials for the needs of target groups, affordability to users, ease in implementing, and the potential of improving the quality of teaching and learning in teacher education institutions and ultimately in schools. As one instance of how these criteria might be addressed, special attention should be paid to how the use of ICT can promote greater participation and achievement of girls and women in education.

One of the key aims of the Experts' Meeting was to develop a curriculum framework that might guide teachers' professional development in ICT integration or infusion. The development of such a framework for use in the region. Key contextual factors are identified within which any teacher education curriculum operates, as are key teacher competencies. To help identify the stage a country, school system, or school is at in terms of ICT development; and the second to help define how ICT may be used to expand the learning potential of students.

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