



I.C.T. in Higher Education in India: Issues and Challenges

Dr. Sujeet Jadhav

Assistant Professor & Head, Department of Botany, S. B. R. College, Mhaswad Tal. Man
Distt. Satara (MS)

Pooja Vikrant Deshmukh

Assistant Professor, Bharati Vidyapeeth Deemed to be University, College of Engineering
Pune

Aarti A. Sawant

Assistant Professor, Bharati Vidyapeeth Deemed to be University, College of Engineering
Pune

Snehal C. Mane

Assistant Professor, Bharati Vidyapeeth Deemed to be University, College of Engineering
Pune

Dr. Supriya Srivastava

Faculty of Management Sciences and Liberal Arts, Shoolini University, Solan, Himachal
Pradesh 273229

Dr. Arun Pratap Srivastava

Professor, Department of CSE, Lloyd Institute of Engineering and Technology, Greater
Noida, India, Uttar Pradesh, 201308

Abstract

ICTs are generating a swift change in society. Each aspect of life is affected by them. In a similar spirit, it is undeniable that ICT significantly affects schooling. It makes teaching and learning effective and interesting. To comprehend what ICT means for education, we must have a fundamental handle of both ICT and education. ICT is a general expression that alludes to a communication technology, including applications and services like video conferencing and remote learning. In addition to radio and television, it likewise encompasses mobile telephones, laptops, network infrastructure, satellite systems, from there, the sky is the limit. The reason for these technologies in education is to support and improve student learning as well as to design learning environments. ICT might be categorized as a subset of educational technology. ICTs' significance, influence, and potential to promote future growth and development are undeniably investigated. The inputs into the educational system include teachers, students, classroom materials, instructional aids, and teaching methodologies. Both the quantity and calibre of student learning are the outcomes.

Keywords: *I.C.T, Education, Quality, Communication, Technologies*

INTRODUCTION

Information and communication technology, often known as ICT, is described in this preface as "the set of various technological tools and resources used to communicate, produce, distribute, store, and monitor information." The United Nations Development Program (UNDP) defines Information and Communication Technology (ICT) as:

ICT, which includes various products, projects, and services used to generate, store, process, distribute, and exchange information, is inherently information processing technology. Examples of how the development of information technology is impacting the quality of education include improved core competencies, increased student engagement, and increased teacher technology training.

Information and communication technology is skilfully used to adapt academic courses and curricula to create a student-centred environment. To help students understand and access new teaching methods, teachers teach students how to make the most of information and communication technology. Information and communication technology (ICT) is rapidly becoming a necessary part of the educational process. Many aspects of an individual's life are affected. These changes have forced academic institutions, administrators, and teachers to reassess attitudes, teaching strategies, and future prospects. New barriers to access have emerged.



Figure 1: Education Quality

ICTs can possibly improve education's relevance and quality while likewise expanding access to it in unfortunate countries, claims Tinio (2002). ICTs greatly enhance learning and memory, giving developing countries hitherto incredible potential to enhance educational systems, boost the formulation and execution of governmental policies, and extend opportunities for poor people and for business. ICTs might provide access to information in previously unimaginable ways. Perhaps of the biggest issue that the impoverished and numerous individuals who live on the planet's poorest nations contend with is isolation. ICTs have significantly changed numerous aspects of our lifestyle. ICT has had a big impact during the past two to three decades if one were to see sectors like health, tourism, the travel industry, business, regulation, banking, engineering, and architecture. The way that these fields operate today is considerably different from how they did in the past. Education, in any case, appears to have had a stunning lack of influence and significant change when compared to other businesses. Many individuals have attempted to study this lack of action and impact.

THE IMPORTANCE OF USING ICT IN TEACHING-LEARNING PROCESS

It is commonly acknowledged that ICT plays a crucial role in enhancing working conditions, information processing and interchange, educational techniques, scientific research, and information access. Lecturer can use

her ICT to facilitate peer discussion, critical thinking, and learning. Technology-based instruction may not be required in every class, but overall, it provides relevant models and demonstrations, reorients classrooms, schedules students for the workforce, and improves education. Most beneficial because it increases flexibility, improves access, and meets public demand. for efficiency. Research shows that the primary purpose of using technology in the classroom is to provide value to students. This increased value should affect student performance. In their opinion, ICT has great application potential in course delivery.

A few scholars believe that technology has the ability to change how pupils advance and how teachers teach. According to certain authors, technology might "revolutionize" education. In other words, ICT assist instructors and students with developing their abilities, and when appropriately applied, they might alter the jobs and social conventions in the classroom.

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As a result, technology can possibly greatly improve educational opportunities for students. By enhancing students' cognitive, critical-thinking, information-access, evaluation, and synthesizing skills, ICT can possibly improve students' readiness. ICT likewise provides students with prompt and accurate feedback. ICT use in the classroom is likewise believed to promote "profound learning" and assist teachers with better accommodating the different requirements of pupils. It is suggested that constructivist teaching methods might benefit from ICT-supported learning environments.

METHOD

There are no established standards for measuring learning effectiveness. Behavioral, cognitive, and technical indicators of learning quality used for global monitoring of learning goals, now known as the Millennium Learning Goals (MLGs), represent three different techniques for assessing quality of learning improvement. It's a blend. This combination has improved in the face of criticism that the Millennium Development Goals for Education have failed to address inequalities arising from differences in the quality of learning (Barrett 2009). The EFA Worldwide Monitoring Reports (different years) cover a wide range of topics such as finances, learning environments, study time and school resources, and learning outcomes as assessed by cognitive assessments (ibid.). According to of Edqual, a research program consortium on the implementation of quality education in low-income countries, the main focus is on measuring cognitive learning outcomes, with 10 institutions dealing with basic education quality. International monitoring also reports quantifiable inputs such as teacher supply and quality (eg, academic and professional qualifications and absenteeism). Many scientists have developed this strategy to study the efficacy of CALs.

Learning quality can be assessed by self-assessment Society and Azim Premji Foundation 2008; technical structure combining qualitative and quantitative parameters) or by standardized 'one-size-fits-all' tests (e.g., ASER report his Pratham test questions). Both methods have their drawbacks, but some systems (such as World Bank 2007) combine both. However, these technical management systems do not provide the details of:

i) The relationship between learning outcomes and an individual's socioeconomic status ii) Implications for the relationship between financial security and academic performance This section deals with the relationship between learning methods and learning outcomes.

Process-centric debates over the past three decades have resulted in the establishment of research activities on specific socioeconomic settings to quantify the impact of the quality of learning programs. According to those in a bad mood. Supported by four elements. (2002):

Information, skills, attitudes, processes. One of the largest surveys of educational quality ever conducted, SACMEQ, was a cross-country survey of 42,000 primary school teachers and students in sub-Saharan Africa. It reveals background (orientation, age, socioeconomic status, etc.) and school conditions (such as school location) have a significant impact on the effectiveness of projects to improve her four areas above. Therefore, "process" needs to be considered at different levels. Combining these two approaches, she sponsored a 'learning effectiveness study' for her CAL in Bihar. See the information below.

Learning objectives are defined as:

In their opinion, irritabile et al. Learning outcomes, defined as "specific information, skills, or attitudes that a participant should have by the end of a learning episode," claim to be the primary method of assessing the effectiveness of educational programs.

To measure learning efficiency (short-term learning) and examine the overall impact of interventions on students enrolled in CAL courses in environmental sciences, mathematics, and dialects, variable designers used latent variables, perceptual variables, and may choose to classify quantifiable variables. You can use it to:

1. Information (K variables):

How did the intervention affect student information acquisition, retention, and information retrieval after enrolment in the CAL? What impact did it have on retention?

2. Skill (S-variable):

What effect did the intervention have on improving skills (e.g. did the student demonstrate skills in using her ICT for coursework in the subject areas covered by the CAL?

DESIGN

1. The overview contains coded answers to questions for each of the five variable design categories above, along with three possible timelines (one for each assembly: students, teachers, school administrators). Some real questions have also been added to increase diagnostic power.

2. Eliminating Perception Bias: Because the schedules are primarily intended to capture student and teacher reactions, they might be subject to "perception bias." But as the study has shown (Feldman 1976; Cashin 1995), there is a high correlation between respondents' perceptions of learning programs and their performance in the program. Assessments of the relationship between perception and achievement or performance can therefore spot any bias in perception. The 13 respondents' academic achievement on examinations and assessments in the fields of dialects, mathematics, and environmental sciences has been compiled in request to provide this information. The effectiveness of the responding teachers' CAL training has additionally been examined. The main finding of this inquiry, nonetheless, is that the CAL program in Bihar has experienced serious record-keeping defects and lacks adequate verification of performance at all levels.

3. Design validity and reliability: Using inter-item correlation analysis and the Cronbach alpha reliability test, the study designs described above were assessed for conceptual validity and reliability for assessing learning efficiency in CAL. Results are summarized in Appendix I. Two separate test types dealing with primary item correlations confirmed the survey design and proved to be reliable.

4. To guarantee that all population segments are covered, to capture associations between learning quality and factors like socioeconomic position and regional economic prosperity, and to meet the randomization condition

necessary for statistical analysis, test design is essential. It likewise required to be set up so the precise results of different distribution strategies could be compared. A two-step sampling process was used to ensure this. Three comparable districts (Bosges Pur, Samastipur and Sarang) were selected based on the following criteria: Targeted sampling from districts where all three delivery models are practiced (Das Gupta 2010). There are a total of 14 districts, South West, North West and North Bihar, corresponding to these three indicators. Gaya, which has a high percentage of underrepresented castes, was selected as an indicator management district, and Muzaffarpur, which traditionally has a more developed education system than other parts of Bihar, was selected as a comparison district. Five schools or learning centers were randomly selected from each of these five districts. Based on enrollment data, this sample design should cover approximately 25 schools/learning centers, typically with 6785 students and 81 teachers. The final survey, which included attendance data, included 3960 students and 54 teachers. .

5. Results or output: Analyzes of the summary data were performed quantitatively and quantitatively for each collection of traits (subsection 'Design variables') calculated for cohorts defined by orientation and social background to arrive at overall student performance. Provides final conclusions on qualitative indicators. A set of comparable indicators was also presented showing the contribution of each component listed under the process factors to determine the extent to which the teacher wishes to integrate her CAL into her curriculum and teaching methods. To do. We examined the results for each of the three implementation strategies to allow comparisons between them and between districts.

RESULTS

❖ School Level Analysis

Finding learning obstacles: One of the significant objectives of the study was to identify the subjects that students find difficult. In request to determine any discrepancies, this was decided using a perception index and a comparison of performance (test results).

Table 1: Subject-specific rough spots

Subjects	number of students struggling in	Percentage of Sample	the percentage of students struggling only in	the percentage of students struggling only in	percentage of boys experiencing challenges in	the proportion of girls experiencing difficulty in
Hindi	90	4	6	51	36	45
Urdu	160	6	103	26	44	59
Eng	109	30	45	38	68	75
Sans	217	59	59	41	79	88
Mathematics	391	12	113	56	85	92
Science	160	6	65	11	99	96
Other	22	9	79	69	102	110

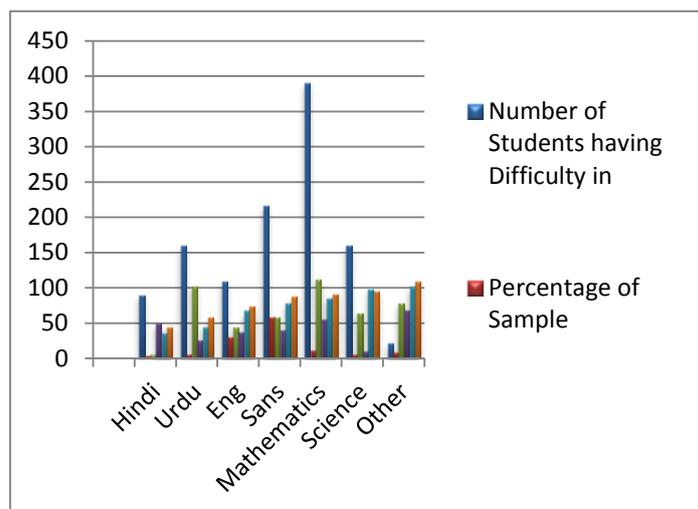


Figure 2: Subject-specific rough spots

In excess of 82 percent of students experience significant difficulty in one subject, with Sanskrit and English accounting for 78 percent of these issues individually.

In addition, there is a significant difference in sexual orientation between learning English and Sanskrit (see Table 2 in Appendix II). As a result, directional differences in teaching strategies in secondary school influence how students learn and acquire information (for a summary of these findings in the literature, see Aslam and Kingdon 2011). Please refer to). It can be argued that gender patterns of mathematics accessibility in secondary school are adequate predictors of later life orientation-biased specializations (choose). arts and humanities). A study in the light of NCERT data showed no significant difference in standard V orientation, but 16 elementary school students underperformed in both dialect and mathematics (World Bank 2009). In any case, the Bihar example shows that sexual orientation distinctions widen in her next three years of secondary school (standards VI-VIII).

Table 2: Gaps in knowledge and perception on the role of e-Samarth

Perception/ Performance	School Authority	Teachers
An increased desire to learn	23	11
lengthening of the attention span	35	15
increased engagement in the classroom	41	18
Enhanced classroom interaction	50	29
Correct answers/response	55	35
further clarification of the subjects covered by CDS	63	44

Improved examination performance	69	48
increased knowledge of the topic	45	56
A rise in enrolment (students transferring schools)	70	81

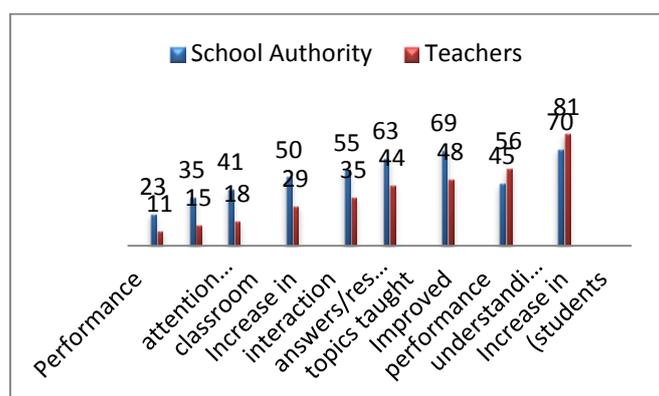


Figure 3: Gaps in knowledge and perception on the role of e-Samarth

Teachers had quite different opinions about the effects of Samarth than school administrators, who were exceptionally optimistic (Table 2). District and state authorities, as well as the workers of the business partner, had mostly speculative impressions because they had little to no attention to the qualitative markers of the program's efficacy in well interfering with the learning process.

CONCLUSION

National boundaries have become arbitrary lines on maps as a result of the information and communication technology revolution. In this scenario, education is one of the services that must be made available to consider international trade to be free. The utilization of ICTs in present day schooling can assist the government with making significant financial savings.

Moreover, a variety of quality growth is evident with the greatest resources available for training. The integration of ICT into different school levels can raise educational standards and quality. One obstacle to the use of ICT in 21st century development is the lack of resources in the education sector. The use of ICT and its integration into modern education is a daunting task. Nevertheless, it is important to develop policies that promote ICT education, support broad access to information and skills for ICT learning and use, increase community participation in subsistence ICT applications, reduce power and internet Problems can be overcome by supporting infrastructure facilities such as Accessibility to ICT resources in educational institutions, lack of training to use ICT tools, language barriers, lack of funding, etc.

FUTURE SCOPE

Future applications that are included among teaching tools will bring about a desired improvement in the professionalism of a facilitator. Through this, one may learn about the use of mobile phones outside of the classroom and their penetration of the classroom environment. In the future, electronic copies will be widely used. Days that are unpredictable, like floods and Corona-COVID 19, Lockdown, quarantine, and any other

emergency has a significant impact on the continuation of instruction, where educational applications will most likely help in essential ways.

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