

# I.T. in Education Sector- A Study of Techno-savvy Educational Institutes of Selected Cosmopolitan Cities of India

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**Abstract** - Technology, today, is embedded in every aspect of human life. It has become the life and blood of modern society and will continue to be for a long time to come. It has evolved tremendously and will continue to do so to cater to the new needs of changing society. The iGen - those born in or after 1995 cannot imagine their life without technology.

Technology which was once confined to industry has not influenced education sector as well. In fact, technology has been playing a prominent role at the forefront of education ever since learning and development came into being, right from carving symbols and figures on wall of caves, to Gurukul education where the students were taught the use of technology prevailing then, to using of artificial intelligence and virtual reality.

Not long ago, education was pertained to the reading of books and listening to teachers which were boring to many students and tiresome to teachers. Some educational institutes tried to introduce activity-based education which of course motivated the students and increased the interest level to a certain extent, but the effect was not as expected.

Talking about present times, the entire education system has been revolutionized. The classrooms are digitally empowered, and internet has made education accessible beyond classrooms. Education today is no more bound by time or space. The scope of classrooms has increased by leaps and bounds. When it comes to learning, there is an unlimited amount of knowledge available at no cost or at economically viable price. New education system replaced chalkboards with whiteboards and Smart Boards. Notebooks and textbooks are being replaced with laptops and iPads.

According to the fact provided by Wikipedia, YouTube has more than 70,00,000 educational videos. Besides, there are a lot of other educational websites sorted subject-wise. Many new educational applications are put forward in market, and their business is exploding in crores and millions.

*Index Terms* - ICTs, education.

## INTRODUCTION

Schindler *et al.*, (2017) in his article, states that technological application in education engages the student to involve in high-order thinking, develop communication and discussion, and reflect on the gist of the content. It also enhances digital competency. Mistler-Jackson & Songer, (2000) established that the implementation of technology in the classroom has enhanced the motivation of the student to understand and accomplish the tasks. Marc Prensky (2001) noticed that an average student spends less than five thousand hours reading in his entire life but more than ten thousand hours playing digital and online games. He also stated that the students of the present are no longer the ones our traditional education system was designed to teach.

Researchers such as Pucel & Stertz (2005), Crowe (2004), Lu and Gordon (2009), have recognized that technological education method is needed than traditional education. The National School Boards Association (2007) recognized technological proficiency as an essential learning tool of the twenty-first century. A remarkable statement of John Dewey "If we teach today's students as we taught yesterday's we rob them of tomorrow." Agnello, White, & Fryer (2006) sums up the importance of technology in the education system. They pointed out the challenges, the traditional classroom teachers have to face due to rapid shift and use of technological methods in the classroom and about the expansion of the knowledge base available. Gressard & Loyd (1985) said that the attitude of teachers towards technology and technical gadgets is the main factor in implementing Information technology in the education system. They also pointed that not all teachers are keen on technological methods.

From the above literature it is clear that ICT has impacted traditional method of education, but no major studies have been conducted to study the factors being majorly affected by ICT. To cover the gap of literature, following objective was framed.

**OBJECTIVE OF THE STUDY**

To explore the factors that are majorly being influenced by ICT in education sector

**RESEARCH METHODOLOGY**

A quantitative approach with an exploratory and descriptive design encompassing the survey method is used.

**Collection of Data:**

The research plan calls for gathering secondary data as well as primary data.

The analysis of present study is based on primary as well as on secondary data. However, more emphasis has been laid on primary data.

**Questionnaire:** A well structural schedule of questions containing different aspects of the study was developed and circulated to the persons concerned. A questionnaire consisting of 11 items for testing impact of ICT on education sector was framed and circulated to the respondents. It was circulated with the help of google form.

To find out the impact of information technology in education sector 430 respondents were contacted. The

respondents were mainly teachers, and in some cases, principals/ directors directly involved in teaching were also contacted.

Quantitative data analysis tools were used to analyze the collected data. Descriptive statistics were used to describe and interpret the results of the study.

The data was collected from 12 cities in all. The cities selected were strictly metro and/or cosmopolitan cities. The cities covered in the present study are: Mumbai, Chennai, Kolkata, Delhi, Surat, Chandigarh, Pune, Ahmedabad, Bengaluru, Hyderabad, Jaipur and Indore. A list of highly renowned schools/ colleges was prepared with the help of websites. Due care was taken to include only those educational institutes who are making use of I.T. while imparting education. Initially respondents were contacted through telephonic mode. Then the google form was floated to respondents with their consent. The sampling was non-probabilistic followed by snowball sampling.

**Table 1: Reliability Analysis**

Variables	No. of Items	Cronbach's Alpha
Factors being majorly affected by ICT in education sector	11	0.862

An analysis has been conducted for checking the reliability of the questionnaire and the results were obtained. The Cronbach's alpha (a measure of reliability) has been calculated for all items in the questionnaire used for measuring impact of ICTs in education sector. The co-efficient in the above table indicates reliability as it meets the minimum acceptable level of 0.7 (Hair *et al.*, 2009).

From the table no.1, following observations have been derived:

Statements	SA	Agree	UD	DA	SD	Total	Valid	$\bar{X}$	$\sigma$	SKW	Kurtosis	Mean Ranking
Evaluation of Students through ICT	149 (34.7)	151 (35.1)	29 (6.7)	90 (20.9)	11 (2.6)	430	430	3.78	1.199	-.669	-.839	1st
Infrastructure facilities	11 (2.6)	75 (17.5)	123 (28.7)	145 (33.4)	76 (17.8)	430	428	2.54	1.054	.212	-.732	10th
Classroom Layout to suit ICT	36 (8.4)	263 (61.3)	25 (5.8)	29 (6.8)	76 (17.7)	430	429	3.36	1.265	-.978	-.468	5th
Curriculum Personalization through ICT	36 (8.4)	197 (45.9)	66 (15.4)	119 (27.7)	11 (2.5)	430	429	3.30	1.043	-.311	-1.030	6th
Examination through ICT media	71 (16.6)	220 (51.4)	25 (5.8)	101 (23.6)	11 (2.6)	430	428	3.56	1.099	-.602	-.766	3rd
Personalized Instructions	16 (3.7)	133 (30.9)	132 (30.7)	55 (12.8)	94 (21.9)	430	430	2.82	1.196	-.286	-1.088	8th
Adaptability of Teachers	16 (3.7)	133 (30.9)	55 (12.8)	96 (22.3)	130 (30.2)	430	430	2.56	1.303	.141	-1.444	9th

Shift in Roles of Teachers	41 (9.6)	233 (54.3)	30 (7.0)	96 (22.4)	29 (6.8)	430	429	3.38	1.132	-.659	-.730	4th
Improvement in Critical and Analytical Ability of Students	16 (3.7)	192 (44.9)	30 (7.0)	96 (22.4)	94 (22)	430	428	2.86	1.298	-.241	-1.485	7th
Addiction to ICT Gadgets	16 (3.7)	328 (76.6)	48 (11.2)	25 (5.8)	11 (2.6)	430	428	3.73	.737	-1.959	4.163	2nd

### EVALUATION OF STUDENTS

The complete data on students’ progress including on-line quizzes, multiple-choice tests results, portfolios, attendance record, works in progress, feedback from classroom performances, etc. can be collected at the desired rate, and compiled in the desired format. Teachers can use this information to make data-driven decisions regarding the adjustment of instruction of each individual student. With the use of ICTs Continuous evaluation of students on the basis of pre-determined standards has become easy for teachers. It has made the task of maintaining records easy. Prompt feedback of students’ evaluation has been feasible using ICTS.

#### Infrastructure facilities

The infrastructure of educational institutions and the gadgets used have started towards a major shift. This change is however, in its infancy. This is clear from the data shown in the above table.

Some campuses and now wi-fi embedded where students have free and easy access to I.T. Of course, some restrictions are imposed on use of certain sites and devices.

**Classroom Layout:** The classroom layout is redesigned to reflect the shift of attention from teacher to students. Instead of typical rows of tables, classroom set up are organised in such a way that students equipped with individual computers or any I.T device face each other and the teacher. It depicts collaborative learning method instead of typical tradition method of education. 24.5% of the respondents, however, stated that changing classroom layout is very tedious and expensive. Students are comfortable with traditional layout.

**Curriculum Personalization:** It is a known fact that all students in a classroom do not learn at the same pace. Those students who are naturally fast learners have to compulsorily go bit slow in order to maintain pace

with slow learners. This undermines the progress of talented students. Conversely, slow learners quite frequently pass through the phase of inferiority complex on their inability to learn and grasp things fast. ICTs in modern educational institutions have helped students to learn as per their own pace without facing the threat of competition or complex. It has now become possible to provide student to each student as per his/her capability and liking. The table above however reveals that much needs to be done in this direction.

**Examination through ICT media:** It has become easy to conduct examination through ICT media viz., on-line quizzes, multiple- choice tests and so on. Assessment in a classic educational institution is usually limited to several examinations at the end of completing the syllabus. The assessments are usually done using grades/marks and its primary goal is to compare students’ achievements with a set of predefined standards. More detailed assessment of students’ needs, abilities and progress has been too difficult to perform until now. Some education institutions are even today facing resistance from students as well as from teachers.

**Personalized Instructions:** Information technologies have made personalized instruction possible to suit to the need and capability of individual student. This approach has become highly popular in e-Learning, but it can also be implemented in the classroom, when selective delivery of digital content becomes a part of personalized instruction. ICT has not been completely successful in providing personalised instructions to students.

#### Shift in Role of Teachers

Some teachers encounter some transitional problems when implementing the ICT approach. And this is not surprising. Their role has shifted from instruction to mentoring, advising and consulting. They are not accustomed to this new, open and customizable

learning environment. Many teachers encountered serious problems while facing the shift in their roles.

**Adaptability of Teachers:** Teachers have to be trained to upgrade themselves to be in line with upcoming technology. Most of the teachers from GenX feel that it is hard to learn the complicated technology and blackboards are much simple. They believe classroom education involves emotional binding that helps in being good humans.

**Improvement in critical and analytical ability of students:** Undoubtedly, technology increased the interest in learning by many folds and modern technology helped students improve their critical thinking and analytical skills which is very much necessary to face any kind of challenge. It has not only helped the students to become successful but also to excel. However, every few respondents did not agree with the statement. Some respondents were indecisive but they want to adapt themselves to this change.

**Addiction to Gadgets:** Majority of respondents declared that technology in the education sector make students more attached to machines and less socially able. We can see that the children of iGen spend more time with cell phones and other gadgets. Even a baby less than a year becomes calm and is more attracted to the cell phone display.

#### FINDINGS OF THE STUDY

Thus, the fact that education technologies and digital content development tools has made education available to masses is indisputable. Based on research and practical evidence, there are several advantages of Information, Communication and Technology (ICT) in learning:

- ICTs allow customized delivery of relevant education material to each individual learner.
- ICTs make presentations and content more engaging and attractive.
- It is easily possible to monitor the progress or otherwise of any student as well as that of teacher. The manipulation which could be done through traditional practices is possible to be eliminated.
- ICTs can build virtual social communities among different educational institutions, teams of students or teachers.

- ICTs have made learning interesting. Wide range of information in form of audios, visuals and written content is available easily.
- The latest innovations in ICTs (mobile tools, cloud solutions, etc.) allow to implement continuous learning processes in different learning contexts and provide on-demand support to students.
- The teachers of millennium though not new to technology are busy and lack time to upgrade themselves. The other barriers are lack of resources, limited or no access, low expertise, limited support and lack of time.
- Technology is growing at an exponentially faster phase which means a gadget bought today may become less useful or not at all in three months. Upgrading those needs money, time and expertise.
- Students, now-a-days, get easily adapted to technology. Software programming is becoming the favourite subject for kids these days. They could learn, analyze and create a software program even before they turn into teens. This proves that the brain is slowly evolving from its present state to a higher state of understanding machine language.
- Studies are going on as to how it would affect the brain but for now, artificially intelligent machines are in a major role.

#### SUGGESTION

1. Teachers should acquire some new skills in the effective use of information technologies, mentoring, mediating values and encouraging self-motivation. They should also systematically evaluate their students' activities. Teachers are key to the successful implementation of personalized learning. To understand and apply the new learning methodology, teachers themselves need extensive learning opportunities. This implies that the professional development of teachers should be viewed by policy-makers as a top priority.
2. A good learning technological media can be something that is easily accessible in any place. It should be easy to use by an average person with limited knowledge of computers. It should be highly interactive, fun and work on low

bandwidth and should not take lots of time to load and should be able to upgrade itself from time to time.

3. Adaptation of Academic Management Systems (AMS) has helped assessment easily manageable and more optimised throughout the learning process.
4. Blended learning is a new approach that is gaining much importance these days. It is a method wherein different methods are combined together to deliver a particular course. These methods generally include a mixture of face-to-face learning, self-paced learning and online classrooms.

#### CONCLUSION

Even the most advanced teachers have to use the universal teaching strategies to deliver course material to students in the traditional classroom. Thus, the 'one size fits all' approach is not conducive to meet to the requirement of diversified students. ICTs, in such cases serve as a panacea for all problems. The education using modern technology like Augmented Reality, Virtual Reality and Artificial Intelligence has made learning more collaborative and engaging. Today, it is almost impossible for education sector to keep pace with the changing times without the help of ICT.

There are also a lot of social groups online related to every field where the students interact with others with the same mindset. Group discussions and knowledge-sharing blogs are increasing so it is not fully right to say that society is becoming less socially able. It is only that the medium of communication has taken a different platform.

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