

# Expected Changes in Education

## A Comparison on Education in the Industrial Society to Education in the Information Society

**Mrs. Lila Simon**

Asstt. Professor,  
Bhopal School of Social Sciences Bhopal (M.P.) India.

### ABSTRACT

*The processes by which meanings are created and shared with through ICT are the new literary practice in the present digital world. There are many terms used in the information society to describe the aspects of literacy like multimedia, interactive, ICT or digital literacy, etc. Each of them focuses on the operational aspects of using ICT. The recent shift of emphasis on expansion of the term IT to ICT indicates that the communication is now seen as a central component of the ICT capability and clearly depends on both “traditional” and “new” literacy. Through this paper, the researcher has tried to focus on the impact of emerging technology on teaching and learning. More focus has been given on existing digital technologies which have made the classroom teachings more effective. There has been a huge change in the attitudes among the students of the then industrial society to the now so called information society. This has raised eyebrows to realize the need of the present student community to adapt the fast growing digital scenario. Education being the utmost important field in a student’s life, the institutional heads has all the more focused on adoption of digital classrooms. The emerging trends with the advancement in technologies since the 1980’s to the present millennium have witnessed a great milestone. Though the then industrial society produced intellectuals with traditional methods of teaching–learning process, the present information society demands an in-depth learning of concepts in STEM [Science, Technology, Engineering and Mathematics]. The study reveals the need of the present digital classroom learning with the increase in student’s levels of motivation, sense of self confidence, self sufficiency and greater aspirations and expectations. With the implementation of ICT tools, the academic standards have raised and the classes have now become more attentive, interactive and informative. With this upbringing, the educational institutions witnessed a vast change in the students just not in their studies but also in their overall personality as a lot has been inculcated into the student’s life with the change in technology.*

**Keywords** - Digital literacy, Digital classrooms, Emerging technology, Industrial society, Information society

### I INTRODUCTION

Information and communication technologies (particularly computers and the Internet) are widely acknowledged as important resources for socio-economic advancement in both developed and developing countries. This is doubly so against the backdrop of the global economy which is driven by the “information age”. Way back, the Gurukul system of education was known for dedication, knowledgeable teachers, individualized and learners centered teachings and self motivated students eager to learn. This system changed over last few decades due to increase in number of students and to some extent number of teachers who required competency in teaching. The use of audiovisual aids gets further restricted due to some unmotivated people becoming teachers. The central government realized the need of improving quality of education through the use of television wherein most competent teacher teaches the topic with the help of most appropriate teaching aides. Developing countries, however, face enormous challenges in their ability to utilize these resources for their growth and development agenda. Limitations range from infrastructural constraints to an individual’s ability to convert access to information and communication technologies (ICTs) into tangible benefits in light of other environmental constraints. In this context, shared use models of access

such as tele – centers, libraries and internet cafés, etc., are important means of making ICTs available.

### II BACKGROUND

I happened to come across an issue of digital LEARNING which focused on the adoption of digital classrooms by the Indian institutions which highlighted with a range of stakeholders who discovered how the digital classrooms are reorienting the educational structure. This motivated me to compare the existing digital scenario with the earlier time classroom teaching, using chalk and black board.

### III REVIEW OF LITERATURE

Many governments in the late 1990’s, developed plans to intensify their investments regarding ICT in education. The quick rise of internet and www has led to a great adoption by the students to enhance quick learning. ICT in education which is in turmoil at times due to its various challenges needs to be addressed. Therefore, it has become important for the education decision making authority to periodically assess the actual situational uses of ICT in educational practice.

Many countries have been regularly monitoring the status of ICT in the field of education only to be accountable for the huge financial investments which are mainly from public sources but also to inform decisions about the content and directions of future policies. Though in addition to various national assessments taken up as a part of government's eagerness to find out the implementation and effective use of ICT related efforts are progressing in comparison to the past.

Programmed learning material along with combination of other methods for teaching different subjects was found to be effected in terms of achievement of students [Bhushan, 1973; Dewal, 1974; Pandya, 1974; Shitole, 1976; Kuruvilla, 1977; Patel, 1977; Sodhi, 1977; Verma, 1977, Sansanwal, 1978; Mullick, 1979; Parlikar, 1979; Sha, 1979; ZPandey, 1980; Seshadri, 1980; Sha, 1980; Trivedi, 1980; Inamder, 1981; Man, 1981; Mavi, 1981; Suthar, 1981; Davies, 1982; Ravindranath, 1982; Menon, 1984; Choudhary, 1985; Gautam, 1986; Joshi, 1988; TYhaker, 1993; Agashe, 1995; Shah, 2002; Pandit, 2003; Dubey, 2004 and Kaur, 2005]. PLM was found to be as effective as structured lecture methods in terms of achievement of students [Chandrakala, 1976; Govinda, 1976].

Lecture method was found more effective than demonstration method and programmed learning method [Ghetiya, 1999]. Also students expressed favourable options towards PLM [Govinda, 1976; Chouhan, 1973; Kuruvilla, 1977; Sansanwal, 1978; Mavi, 1981; Davies, 1982; Menon, 1984; Agashe, 1995; Shah, 2002 and Kaur, 2005]. In addition to it, the developed instructional material was found to be significantly effective in enhancing creativity [Sharma, 1995], in developing better understanding about environment [Sharma, 2005] and in enhancing reading skills amongst students [Danikhel, 1998] and reasoning amongst students [Suri, 2002].

The developed Computer Assisted Instructions [CAIs] were compared with the lecture method/traditional method and found that the developed CAIs were significantly superior to lecture method/traditional method in teaching different subjects [Hayes, 1987; Perkins, 1987; Cates, 1988; Cohen, 1988; Karvelis, 1988; Lawson, 1988; Yates, 1988; Bonk, 1989; Conlin, 1989; Drexell, 1989; Fillingim, 1989; Isler-Hamilies, 1989; Koza, 1989; and Prabhakar, 1995]. Further, the traditional method of teaching was found to be more effective in comparison to CAI [Hulick, 1987; Oates, 1988; Cosmos, 1988; Benson, 1989; Park, 1990; and Clem, 1990].

The International Association for Evaluation and Educational Achievement [IEA] decided in 1997 to conduct such comparisons by means of Second Information Technology in Education Study [SITES]. This study consists of three phases: Module-1 [1997-1999]: a school survey, Module-2 [1999-2002]: case studies of innovative ICT-practices, Module-3 [2001-

2005]: school, teacher and student surveys. Between November 1998 and February 1999, data were collected in representative sales of primary and secondary schools in 26 countries.

Turbill [201] focuses on the resistance to technology in teaching literacy in Australian Kindergarten classrooms. She concludes that technology could play a much greater role if there were more computers, more support, more time for familiarization with content and more appropriate software – findings that are familiar from countless studies of the use of ICT in schools. She urges that just as children need to develop concepts of print to read so too they need to develop “concepts of screen” if they are to become “screen” and “visually” literate. Yelland [1999] and Snyder [2002] also discussed new literacies in terms of understanding diverse media. As Ullmer and Ishii [2001] comment, “the screen has cultivated a predominantly visual paradigm of human – computer interaction”.

There are also imaginative uses of tangible interfaces to contrast with the “talking books” approach to developing literacy. These include *Sam*, an embodied conversational agent [Ryokai *et al.*, 2003], and a “magic carpet” [Stanton *et al.*, 2001], although both projects work with children aged 5 or over. With regard to the use of internet, one may observe that in some countries [e.g. Canada and Finland], it is expected that students in primary as well as secondary schools use the internet, this was to a much lesser extent the case in other countries [e.g. Cyprus, Israel, Japan]. From qualitative [Fullan, 1991] as well as quantitative study [Janssen Reinen, 1996], it has been often argued that staff development is a crucial factor in the process of adoption and implementation of ICT in education.

National ICT policies have reached an established position in both developed and developing countries. A study funded by the Australian Department of Education, Science and Training revealed that most national ICT policies focuses on the educational sector [Kearns & Grant, 2002]. As early as 15 years ago, Hawkrigde [1990] discerned four different rationales that drive policies related to the integration of ICT and the use of computers in education:

(a) an economic rationales: the development of ICT skills is necessary to meet the need for a skilled work force, as learning is related to future jobs and careers;

(b) a social rationale: this builds on the belief that all pupils should know about and be familiar with computers in order to become responsible and well-informed citizens;

(c) an educational rationale: ICT is seen as a supportive tool to improve teaching and learning;

(d) A catalytic rationale: ICT is expected to accelerate educational innovations.

## IV RESEARCH METHODOLOGY

### (a) Research Question

- (i) Are the students really satisfied with the use of ICT tools in the Classrooms
- (ii) Are the teachers satisfied with digital teaching

### (b) Research Sample

The students and teachers [approximately 125 and 30 respectively] of the Bhopal School of Social Sciences [BSSS], an autonomous private institute, were interviewed to find their opinions on the use of ICT tools.

TABLE 1  
EXPECTED CHANGES FROM EDUCATION IN THE  
INDUSTRIAL SOCIETY TO EDUCATION IN THE  
INFORMATION

Actor	Education in the industrial society	Education in the information society
School	-Isolated from society -Most information on school functioning confidential	-Integrated in society -Information openly available
Teacher	-Initiator of instruction -Whole class teaching -Evaluates student -Places low emphasis on communication skills	-Helpstudents find appropriate instructional path -Guides students' independent learning -Helps student to evaluate own progress -Places high emphasis on communication skills
Student	-Mostly passive - Learns mostly at school - Hardly any teamwork - Takes questions from books or teachers - Learns answers to questions - Low interest in learning	-More active -Learns at school and outside school -Much teamwork -Ask questions -Finds answers to questions -High interest
Parent	- Hardly actively involved in learning process -No steering of instruction - No life-long learning model	- Very active in learning process - Co-steering - Parents provide model

Source: Pelgrum, ten Brummelhuis, Collis, Plomp, Janssen Reinen [1997]

The idea of “digital classrooms” where education is delivered through digital platforms has got the imagination of the education community. They pose as a good strategy for engaging the digital generation and improving individualized learning opportunities, says Dr. Ravi Gupta, Editor-In-Chief of digital LEARNING.

(i) ICT encourages out of box thinking says Dr. Lily George of Shalom Hills International School, Gurgaon, India. Through technology supported class rooms, young scholars are introduced to a realm of opportunities where they explore and study. We believe in moving from traditional chalk and talk methods to break through methods, which will give the winning edge to both our children and teachers. Further, it saves time as terminology aided class rooms gave quick solutions, simulated lectures, question banks on variety of topics.

(ii) ICT brings entire world into the classroom. Mr. Tajvir Singh, IB Coordinator and Head-IT Department, highlights the importance of ICT in the Cathedral Vidya School, Lonavala.

(iii) New generation class rooms have drastically changed teaching, learning process. Teachers have greater flexibility in carrying out their tasks. Lesson planning has become easier as well as “designer” depending upon teachers’ level of interest. Teaching, learning process has become more legible, more detailed and better presented says Principal Mr. Vikaram Seth of the Holy Heart Presidency School, Amritsar. He personally noticed that many teachers are still not willing to use ICT tools and prefer primitive method of teaching.

(iv) Dr.Rajesh Kumar Chandel, Principal, Gyan Ganga International School, Jabalpur describes ICT as beyond bookish language. He adds on ICT as the educational transformation in taking place and delivery mechanism in education. ICT has made the classrooms more innovative and interactive which has enabled in information and knowledge to travel faster and further sharing on a large scale available just-in-time information and knowledge for learning. The students have become bilateral, efficacious and compassionate towards learning process being followed in school.

(v) Principal Ms.Rama Datt, Sanskar School, Jaipur highlights ICT as interactive, absorbing and engrossing classrooms. The use of ICT base solutions in classrooms is creating a long lasting effect on the minds of the students as audio visual impact is much stronger than only video. Learning supported with technology offers benefits to children for long run.

TABLE 2

S.No	Name of School	Place	Strength of pupil	Strength of faculty and staff
1.	Sanskar School	Jaipur, India	2,100	103
2.	Shalomhills International School	Gurgaon, India	2,000	200
3.	The Cathedral Vidya School	Lonavala, India	250	36
4.	Holy Heart Presidency School	Amritsar, India	5000	300
5.	Gyan Ganga International School	Jabalpur, India	800	100

## V ANALYSIS

The survey was conducted for students and teachers of an autonomous college having ICT facilities. The respondents were interviewed face to face and in a few cases were approached through telephones..

### (a) Student's Feedback

- (i) I like to be taught using ICT tools
- (ii) I am satisfied when a teacher uses ICT tool for theory classes
- (iii) Use of ICT in Class room makes the class more lively
- (iv) It helps us to understand better
- (v) A digital display is always more effective .
- (vi) Large formations can be obtained in less time
- (vii) My Institution supports use of ICT tools
- (viii)It helps me to improve my spellings
- (ix) It helps be to use correct terminology
- (x) I like to be taught using ICT tools always
- (xi) I am satisfied when a teacher uses ICT tools in teaching
- (xii) It helps us to understand better
- (xiii)It encourages development of 'out-of-the-box' thinking and free and critical thinking.
- (xiv)It has seen better focus and almost zero distractions and independent learning.
- (xv) Qualitative as well as quantitative learning happens when teachers use digital tools.
- (xvi)The class is more attentive when new advanced methods are used.
- (xvii) It helps me to improve my spellings
- (xviii) It helps be to use correct terminology.
- (xix) A digital display always more effective.
- (xx) Large information can be obtained in less time.
- (xxi)I am really excited and filled with rejoice to have the new technology in my class room.
- (xxii) My Institution supports use of ICT tools.

On the other hand teachers using ICT tools responded to the comparison of their times (traditional method using chalk and board )and present scenario and the responses were as follows:

### (b) Teacher's Feedback

- (i) It is good to use ICT tools in teaching as it helps us to transfer the information more effectively
- (ii) Higher quality lessons can be prepared through greater collaboration between teachers in planning and preparing resources.
- (iii) Improved technology enabled fast tracking of students' performance, participation and progress.
- (iv) It is very challenging to capture the attention of students who are increasingly distracted by cell phones, laptops and other devices of our modern age.
- (v) They can make the students pay attention in class and store, retrieve lessons quickly, connect to the internet and bring the outside world into the class room.
- (vi) The student is actively making choices as to how to generate, obtain, manipulate or display information.
- (vii) There is an increase in students' levels of motivation, sense of self-confidence and self-sufficiency.
- (viii)It is a more student centric and more stimulating learning teaching process.
- (ix) There is an enhancement of technological literacy of the students and thus helps them preparing for global careers.
- (x) ICT caters to Multiple intelligences of the students.
- (xi) But many a times it feels that student is interested only in watching the videos
- (xii) There exists more anxiety and queries among the students which is easy to clarify using 3D effects
- (xiii)The students are more narrow focused and demanding and are more aware of their needs
- (xiv)Also on the other hand ,admit the lack of respect for teachers as the one to one interaction is losing its significance.
- (xv) Students do not feel the need of teachers at times as they find more easier to update their curiosity with the available gadgets.
- (xvi)The use of library has reduced from the then times as students are more into visual aids of learning.

## VI CONCLUSION

A range of studies have looked at why teachers choose to use ICT. These typically involve conducting case studies of class rooms use in a particular setting or from a longitudinal perspective. They portray use of ICT in teaching as being inherently advantageous.

The integration of ICT in teaching and learning processes builds on the professional attitude and willingness of the individual teacher and principal. The ICT proficiency will go to an advanced stage as children learn how to deploy tools like Adobe Photoshop, Adobe Dreamweaver, Adobe Image Ready, JQuery. They are able to use them for their class room works and various competitions. The coming years will provide an upcoming, competition in the field of website designing and international avenues.

Undoubtedly classroom teachings can be made more effective with the use of ICT tools. In learning, though there exists several challenges that need to be addressed. Teachers can take time to discover that computers do not need extra work – rather they actually make their work easier. Again more competent students themselves can be useful resource, this time for their peers. There is no doubt those teachers who use ICT in class rooms have to demonstrate high levels of energy, hard work and perseverance. In my opinion, the fundamental problem that India is facing is the need of more trained teachers. Until the teachers are effectively trained to impart knowledge to their students in the classroom, the mission of improving educations in India would be that much difficult.

A major concern is in the mindset of teachers who fear that ICT implementation may eliminate the role of teachers in the class rooms, thus creating a resistance to the digital growth in the educational Technology. Furthermore, we might expect that teachers attitudes towards using ICT can be influenced by the information they have about the value of ICT, their previous experiences in using ICT, their expertise in using ICT and the expectation that it will contribute to their pupil's learning.

## REFERENCES

- [1] Katz, Y.J., School of education, Bar-Llan University, Attitudes affecting college students' preferences for distance learning, *Journal of Computer Assisted Learning* [2002] 18, 2.9
- [2] Plowman, L & Stephen, C, Institute of Education, University of Stirling, A 'benign addition'? Research on ICT and pre-school children, *Journal of Computer Assisted Learning* [2003] 19, 149-164.
- [3] Pelgrum, W.J., *Computer and Education* 37 [2001] 163 – 178
- [4] Sansanwal D.N., 2009, Use of ICT in teaching – learning an evaluation, *Central Institute of Education Technology, NCERT, New Delhi and State Institute of Education, Chandigarh, Educational Technology Lecture Series.*
- [5] Tonder, Jo, Johan van Braakl and Martin Valcke, Curricula and the use of ICT in education: Two worlds apart?, *British Journal of Educational Technology, Vol 38 No.6 2007, 962 – 976.*
- [6] Termit Kaur Ranjit Singh, Teachers are no longer Gurus but Knowledge Facilitators, *digital LEARNING, September 2013.*
- [7] Wamakote, Harrison, Hennessy <http://manypossibilities.net/african-undersea-cables> ISSN2043-6165 Online journal of African studies, 2 [2010] 39-54.
- [8] Digital LEARNING April 2013,
- [9] <http://www.sanskarjaipur.com/>
- [10] <http://www.shalomhills.com>
- [11] <http://www.cathedral-lonavala.org>
- [12] <http://www.holyheartschools.org>
- [13] <http://www.gyanganga.ac.in>