Impact of ICT in Higher Education -
A survey in colleges of Ramanathapuram District,
Tamil Nadu, India

A R Nadira Banu Kamal
Professor & Head,
Department of Computer Science, TBAK College for
Women, Kilakarai, Tamil Nadu, India.
e-mail: nadira_kamal@hotmail.com
Abstract

It is no secret that sophisticated computing technologies have been used to boost workplace effectiveness. Education has lagged behind in its efforts to understand and use technology both as a facilitator and as a subject of education. Proactive use of technology is not the total answer to the inequities and inadequacies that exist in education programs and teacher training, but it can provide at least a partial solution by strengthening a school’s ability to receive, transmit and exchange information. Urban schools can increase their ability to manage and share information within and across boundaries.

E-learning is a rapidly developing field. Information and Communication Technologies (ICTs) are one of the major contemporary factors shaping the global economy and producing rapid changes in society. They have fundamentally changed the way people learn and communicate. They can transform the nature of education. The entry of ICT, mass media and satellite television into the field of education has added to the roles of the teachers. Participation of several people in creating learning settings demands newer competencies in teacher to take their help meaningfully. E-learning standards are constantly evolving, whether the teachers like it or not they have to be geared up to educate themself about developments among the standards organizations that create the guidelines as well the suppliers that use them to develop their products to be successful in the e-learning world.

A survey has been conducted in the colleges of Ramanathapuram District in Tamil Nadu, India. A sample size of 500 consisting of college students 400 in number and teachers 100 in number are selected and their opinion and steps taken by the colleges to implement ICT for teaching and learning is summarized and a report is presented in this paper.

Keywords: ICT, e-learning, Computer Based Learning.

1 - Introduction

India, over the past decade, has become a test bed for innovations in information and communication technologies (ICT) serving the rural user. The new information and communication technologies of Internet and multimedia have revolutionized the field of education. Communication is the basic to all communication between teacher and student, between institution and government
and between peers. The teaching guru Geoff Petty says that in education 87% of information enters our brain through eyes, 9% by ears and 4% via other senses [David Odyssey (2011)]. So visual aids gain much attention of students more than verbal teaching. The future trends of internet and multimedia will influence and change the traditional methods of teaching and learning and enlarge the sphere of dissemination of knowledge and information. Educators strongly feel that ICT is the most valuable tool to overcome the problem of illiteracy.

Education is a very socially oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners. The use of ICT in education lends itself to more student-centered learning settings. With the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important [P.P. Singh and Sandhir Sharma (2005)]. There have been a number of factors impeding the wholesale uptake of ICT in education across all sectors. These have included such factors as lack of funding to support the purchase of the technology, a lack of training among established teaching practitioners, a lack of motivation and need among teachers to adopt ICT as teaching tools. But in recent times, factors have emerged which have strengthened and encouraged moves to adopt ICTs into classrooms and learning settings [NAAC Decennial Lectures (2004)]. These have included a growing need to explore efficiencies in terms of program delivery, the opportunities for flexible delivery provided by ICTs, the capacity of technology to provide support for customized educational programs to meet the needs of individual learners and the growing use of the Internet and WWW as tools for information access and communication. This paper seeks to explore the likely changes in education as ICT acts as a powerful agent to change many of the educational practices to which we have become accustomed. In particular, this paper explores the steps taken by the educational institutions to implement teaching and learning through ICT and its impact on teaching learning process by the students and teachers of the selected five muslim managed minority colleges in Ramanathapuram District of Tamil Nadu in India.
2- Key Challenges in Integrating ICTs in Education

Significant challenges of ICT integration in the educational system include educational policy and planning, infrastructure, language and content, capacity building, and financing. The information and communication systems, whether networked learning or not, serve as specific media to implement the learning process. It can be utilized to reference out-of-classroom and in-classroom educational experiences via technology, even as advances continue in regard to devices and curriculum. The teaching materials is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio.

Private institutions are now becoming more involved with on-line presentations as the cost of instituting such a system decreases. Properly trained teachers must also be hired to work with students on-line. These teachers need to understand the content area, and also be highly trained in the use of the computer and Internet.

Computer-based learning, refers to the use of computers as a key component of the educational environment. While this can refer to the use of computers in a classroom, the term more broadly refers to a structured environment in which computers are used for teaching purposes. Assessments are easily scored and recorded via online software, providing immediate end-user feedback and completion status. Computer Based Trainings (CBTs) pose some learning challenges as well. Typically the creation of effective CBTs requires enormous resources. The software for developing CBTs (such as Flash) is often more complex than a subject matter expert or teacher is able to use. In addition, the lack of human interaction can limit both the type of content that can be presented as well as the type of assessment that can be performed.

Computer-supported collaborative learning (CSCL) is one of the most promising innovations to improve teaching and learning with the help of modern information and communication technology. The ability to share information in an environment that is becoming easier for the lay person, has caused a major increase of use in the average classroom.

E-learning is naturally suited to distance learning and flexible learning, but can also be used in conjunction with face-to-face teaching [Som Naidu (2006)].

3- Objectives

The main objective of this study is to find out

• The support extended by management of the institution to facilitate ICT in their institutions.
• The extent to which the students and teachers are favorable or otherwise disposed towards ICT.
- The difference, if any, between Arts, Science and Engineering students in respect of their attitude towards ICT.
- Students opinion of online education to traditional.

4- Implementation of ICT

As many as 400 students and 100 teachers from the five muslim colleges in the Ramanathapuram districts of Tamil Nadu were selected using cluster sampling technique. It consists of 250 boys and 150 girls and 60 male teachers and 40 female teachers; 150 arts students, 150 science students and 100 engineering students and 60 teachers from arts and science colleges and 40 teachers from engineering college.

In the study, it is found that as many as 78% of the entire sample have a relatively favorable attitude towards ICT and only 22% of them have a relatively unfavorable attitude towards it. There is no significant difference of opinion between the boys and girls and the engineering, arts and science students towards ICT but the engineering college students are much exposed to ICT when compared to Arts and Science college students. Lack of awareness in the learners about the various media that are available leads to the ineffective use of media.

In the study comparing online education to traditional, even though learners appreciated the flexibility and convenience offered, they preferred the traditional classroom. It also reveals that the convenience of online learning overcame lack of teacher accessibility and the learners in many cases preferred convenience of access having a face to face instructor.

5- Results and Discussion

Experiential learning with the help of modern ICT is both encouraged and required as part of the self-learning processes. This paper first presents the information on usage of ICT in some of the minority institution the assessment of using the ICT by the teachers and students of five minority colleges in Ramanathapuram District of Tamil Nadu in India.

5.1- Equity and Access

These colleges were founded by most well-known Muslim Philanthropists, for the benefit of the socially and economically backward Muslim population of the perennially dry and most draught–affected district of Ramanathapuram. Without such an educational agency these backward women have no chance of entering the portals of a college. Constraints notwithstanding, the managements offer quality education in order to contribute to the cause of building an inclusive society. Both faculty and students are a cosmopolitan mix, without any discrimination. The student profile indicates ample access to economically poor and first generation learners as well as most backward Muslim women.
5.2- Self and Professional-Skills Development of Learners

These institutions requires the teaching faculty to avoid spoon-feeding in the interest of adopting methods of pedagogy that foster self-learning and self-acquisition of knowledge. Accordingly, students are helped, through personal mentoring, to use the computer and web sites to search for source materials for their self-study. Seminars, symposia, conferences, projects and discussions in class offer ample opportunities of interaction to interpret data and communicate ideas to others.

Use of ICT has modernized class-room instruction and student learning processes. Multimedia, digital photography, DVD, CD ROM, Power-Point and laptops are often used by both teachers and learners. The teacher-in-charge of the Audio-Video Laboratory train students in the use of ICT, digital photography and videography. Web browsing is made available for student learning, research and project work.

Participation in workshops, seminars, training programmes in emerging areas, interaction with experts, involvement in research and writing articles for publication in journals by both teachers and students throw open ample opportunities for an effective use of ICT.

Tradition-bound minority women students (chiefly muslim learners) have expressed in one voice their aspiration to acquire modern knowledge using information technology. The questionnaire has elicited feedback on the extent of the use of ICT in five aspects.

<table>
<thead>
<tr>
<th>Use of ICT - NATURE AND PURPOSE OF USE</th>
<th>Art</th>
<th>Science</th>
<th>Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) ON-LINE / CAI SELF-LEARNING</td>
<td>101/180</td>
<td>76/180</td>
<td>90/140</td>
</tr>
<tr>
<td></td>
<td>56</td>
<td>42</td>
<td>64</td>
</tr>
<tr>
<td>(b) ON-LINE ASSESSMENT</td>
<td>76/180</td>
<td>77/180</td>
<td>66/140</td>
</tr>
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<td></td>
<td>42</td>
<td>43</td>
<td>47</td>
</tr>
<tr>
<td>(c) WEB-BROWSING</td>
<td>158/180</td>
<td>144/180</td>
<td>126/140</td>
</tr>
<tr>
<td></td>
<td>88</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>(d) e-MAIL FOR INTERACTION</td>
<td>94/180</td>
<td>58/180</td>
<td>90/140</td>
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<tr>
<td></td>
<td>52</td>
<td>32</td>
<td>64</td>
</tr>
<tr>
<td>(e) PPT for SEMINARS</td>
<td>117/180</td>
<td>135/180</td>
<td>111/140</td>
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<td></td>
<td>65</td>
<td>75</td>
<td>79</td>
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</table>
The table-1 describes the extent of the use of ICT for the various facets of teaching and learning like on-line Self-learning or computer aided instruction (CAI) packages for self learning; on-line assessment; web-browsing; email used for internal interaction and use of PPT. The results are quite exciting. Opportunity to use ICT is extended to every student by the colleges by allotting computer time. The following are some inferences drawn from the feedback.

- **Web-browsing** ranks first with 88% of Arts, 80% of Science and 90% of Engineering students using it substantially.
- **On-line / CAI Self-learning** ranks second with 56% of Arts, 42% of Science and 64% of Engineering students using ICT for their academic course-embedded assessments.
- Close on heels comes **e-mail** for internal interaction. 52% of Arts, 32% of Science and 64% of Engineering students use e-mail. Most members of the college have their own e-mail ID.
- **On-line assessment** is practiced for the benefit of 42% of Arts, 43% of Science and 47% of Engineering students. This is understandable.

On the whole statistics proves that an average of 60.6% of Arts, 54.4% of Science and 68.8% of Engineering students have effectively used ICT for acquisition of knowledge.

- Faculty members are given orientation in the use of ICT.
- Each department has ICT facility to prepare computer aided teaching and learning packages.

ICT is used by all departments including languages. Students are required to submit assignments online, use LCD/PPT for presentations at seminars and conferences, browse web sites for downloading materials for presentation and for class room discussion. They are encouraged to undergo certificate and diploma programmes through online by giving them the infrastructure facilities. They also use e-mail to interact with all teaching members of the faculty who have e-mail ID of their own. Student projects are often prepared with the assistance of the Computers. Teachers enjoy free use of technology for preparing research papers and teaching materials. The Computer Aided Instruction (CAI) package is a unique healthy practice in two colleges. The acquisition of skills in the use of technology by learners has earned them good placement in multi-national companies.

The intensive programme in spoken English offered with the help of the language laboratory managed by the Department of English in all the colleges with inputs from outside experts has contributed to the upgradation of communicative skills to a higher standard.

### 5.3 Curriculum And Curricular-Transactional Strategies

Both curriculum and curricular-transactional strategies emphasize ICT in order to recognize
the learner’s ability to use modern educational technology.

5.3.1- Curricular Strategies:

- Computer literacy is a required module for every student of the colleges of this district and it has been integrated into the curriculum.
- Most programmes offered in various colleges have built-in ICT modules for either acquiring computer knowledge or applying it for specific purposes.

5.3.2- Curricular-Transactional Strategies:

- Facilities offered for web-browsing (at least one hour a week for every student) and e-mail submission of assignments emphasizes the use of ICT.
- Use of LCD/PPT is facilitated by most of the colleges.
- The e-library is an additional facility in some colleges.
6- Conclusion

There have been a number of factors impeding the wholesale uptake of ICT in education across all sectors. These have included such factors as lack of funding to support the purchase of the technology, a lack of training among established teaching practitioners, a lack of motivation and need among teachers to adopt ICT as teaching tools. But in recent times, factors have emerged which have strengthened and encouraged moves to adopt ICTs into classrooms and learning settings.

As we moved into the 21st century, many factors are bringing strong forces to bear on the adoption of ICTs in education and contemporary trends suggest we will soon see large scale changes in the way education is planned and delivered as a consequence of the opportunities and affordances of ICT. Conventional teaching has emphasized content. For many years course have been written around textbooks. Teachers have taught through lectures and presentations interspersed with tutorials and learning activities designed to consolidate and rehearse the content. Contemporary settings are now favouring curricula that promote competency and performance. Curricula are starting to emphasize capabilities and to be concerned more with how the information will be used than with what the information is. This paper has explored the likely changes we will see in education as ICT acts as a powerful agent to change many of the educational practices to which we have become accustomed. Anyone can create content as part of their day-to-day work. In spirit, the idea of E-Learning is that sharing and learning becomes a natural action that is directed and driven by the worker/learner.

There is an explosion in information and it is beyond the boundary of Places. It is available everywhere. There is a new philosophy in the offing. The human layer of the earth has now become a vast downloadable, searchable, writable surface. This is augmented reality in practice. With new mobile usability and capabilities the physical world is moving into digital spaces for first hand learning. The nomadic swarms are already invading the campus and the time has come for the teachers and the institutions to rise up to the occasion and change the face of pedagogy.
7- References

NAAC Decennial Lectures (2004), Quality Higher Education and Sustainable Development.