IMPORTANCE OF ICT IN EDUCATION

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ABSTRACT

This paper is a mere attempt to present a glimpse of meaning of ICT, its importance & its mandatory need for education, which is indispensable. ICT stands for INFORMATION & COMMUNICATION TECHNOLOGY . These technologies include:

- *Computers,*
- *The Internet,*
- *Broadcasting technologies (radio and television),*
- *Telephony.*

One of the many challenges facing developing countries today is that of preparing their societies and governments for globalization and the information and communication revolution. Policy-makers, educationists, non-governmental organizations, academics, and ordinary citizens are increasingly concerned with the need to make their societies competitive in the emergent information economy. Globalization and innovations in technology have led to an increased use of ICTs in all sectors - and education is no exception. Uses of ICTs in education are widespread and are continually growing worldwide. It is generally believed that ICTs can empower teachers and learners, making significant contributions to learning and achievement. Of the teachers interviewed on the effectiveness of ICT in education majority of them felt that introduction and use of ICT adequately will be extremely effective in children's learning and achievement. However, current research on the impacts of ICTs on student achievement yields few conclusive statements, pros or con, about the use of ICTs in education. Studies have shown that even in the most advanced schools in industrialized countries, ICTs are generally not considered central to the teaching and learning process. However, there appears to be a mismatch between methods used to measure effects and the type of learning promoted. Standardized testing, for example, tends to measure the results of traditional teaching practices, rather than new knowledge and skills related to the use of ICTs. It is clear that more research needs to be conducted to understand the complex links between ICTs, learning, and achievement. Again, on the question of impact of audio visuals, research shows that surprisingly little documentation is available on the use and impact of video in education, barring one or two video projects like UNICEF"s animation series, „Meena", which has become a key weapon in the battle against gender and social inequity in South Asia.

Many teachers are reluctant to use ICTs, especially computers and the internet. Some of the reasons for this reluctance include poor software design, skepticism about the effectiveness of computers in improving learning outcomes, lack of administrative support, increased time and effort needed to learn the technology and how to use it for teaching, and the fear of losing their authority in the classroom as it becomes more learner-centered. In terms of using internet and other ICT as a

resource for lesson preparation, most of the teachers interviewed, admitted to never or rarely using it, while very few used the internet to gather information sporadically or regularly.
Keywords: *ICT, Computer, Internet, World Wide Web, Teleconferencing, Radio, Television.*

INTRODUCTION

To accurately understand the importance of ICT in Education there is need to actually understand the meaning of ICT.ICTs stand for *information and communication technologies* and are defined, for the purposes of this primer, as a ‑diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information.‖

ICT permeates the business environment, it underpins the success of modern corporations, and it provides governments with an efficient infrastructure. At the same time, ICT adds value to the processes of learning, and in the organization and management of learning institutions.
The Internet is a driving force for much development and innovation in both developed and developing countries. Countries must be able to benefit from technological developments. To be able to do so, a cadre of professionals has to be educated with sound ICT backgrounds, independent of specific computer platforms or software environments. Technological developments lead to changes in work and changes in the organization of work, and required competencies are therefore changing. Gaining in importance are the following competencies:

- critical thinking,
- generalist (broad) competencies,
- ICT competencies enabling expert work,
- decision-making,
- handling of dynamic situations,
- working as a member of a team,
- and Communicating effectively.

In recent years there has been a groundswell of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. But ICTs are more than just these technologies; older technologies such as the telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools. For instance, radio and television have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and developing countries. The use of computers and the Internet is still in its infancy in developing countries, if these are used at all, due to limited infrastructure and the attendant high costs of access.

Information and communication technology (ICT) has become, within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of

education, alongside reading, writing and numeracy.

One of UNESCO's overriding aims is to ensure that all countries, both developed and developing, have access to the best educational facilities necessary to prepare young people to play full roles in modern society and to contribute to a knowledge nation. Maintaining a capacity to advise national governments on the use of technology in schools and, in particular, on the optimal balance, given local circumstances, between ICT and older educational technologies and assisting countries in developing educational software and materials that reflect their own national and regional cultures are key components of the Organization's strategy to achieve the *Education for All goals*.

Moreover, different technologies are typically used in combination rather than as the sole delivery mechanism. For instance,

- The Kothmale Community Radio Internet uses both radio broadcasts and computer and Internet technologies to facilitate the sharing of information and provide educational opportunities in a rural community in Sri Lanka.
- The Open University of the United Kingdom (UKOU), established in 1969 as the first educational institution in the world wholly dedicated to open and distance learning, still relies heavily on print-based materials supplemented by radio, television and, in recent years, online programming.
- Similarly, the Indira Gandhi National Open University in India combines the use of print, recorded audio and video, broadcast radio and television, and audio conferencing technologies.

Education is termed as one of the basic requirements on which great nations are built. It is an investment that takes its time to pay dividends but, according to economists, education generates the highest returns when compared to any other avenues where resources can be committed. In developing countries, where a large population lives at subsistence levels, primary education is a major tool for enriching human capital. At the primary level, young minds are enlightened to accept new ideas, show creativity, develop critical thinking and above all, enable themselves to absorb surrounding information for informed decision-making at any later stage in life. In this regard, computer studies or ICT becomes immensely important.

How essential is ICT or computer education at the primary level? This question is worth exploring given that our children are growing up in an information age — and not in an industrial age. The argument that we are so underdeveloped and devoid of basic infrastructure that we cannot even afford to think about computers is not very valid any more. With decreasing cost and increasing usability of desktop PCs – which in fact face the threat of extinction at the hands of laptops – has turned the situation from bleak to bright. It is now a matter of choice, rather than availability to introduce ICT at primary school level — at least in the urban areas. Here, it is important to note that there are two very different and distinct aspects of ICT in education:

1. One is teaching ICT itself, and
2. The second is using ICT as an augmented tool to the existing teaching methods which is more important; it will be very useful if the people study from MCSE, CCNA, CompTIA, IBM, and

Ctirix.

This second aspect can be extended further by making computers available to children at home for work and play both, so that the digital divided can be bridged and natural disadvantage of underprivileged children can be neutralized. This philosophy behind projects such as One Laptop Per Child (OLPC).

Education sector can be the most effective sector to anticipate and eliminate the negative impact of ICT. Technology (internet) in another side can be the most effective way to increase the student's knowledge. Being aware of the significant role of ICT (internet) in our life, especially in the educational activities, education authorities should be wise enough in implementing the strategies to empower ICT in supporting the teaching and learning process in the classroom. ICT is not just the bloom of the educational activities, but also it will be the secondary option to improve the effective and meaningful educational process.

The main purpose of the Strategy for Information and Communication Technology Implementation in Education is to provide the prospects and trends of integrating information and communication technology (ICT) into the general educational activities. There are some unavoidable facts in the modern education;

- **First,** the ICT has been developing very rapidly nowadays. Therefore, in order to balance it, the whole educational system should be reformed and ICT should be integrated into educational activities.
- **Second,** the influence of ICT, especially internet (open source tool) cannot be ignored in our student's lives. So, the learning activities should be reoriented and reformulated, from the manual source centered to the open source ones. In this case the widely use of internet access has been an unavoidable policy that should be anticipated by schools' authorities.
- **Third,** the presence of multimedia games and online games by internet has been another serious problem that should be wisely handled by the educational institutions. The students cannot be exterminated from this case. They can have and do with it wherever and whenever they want. Schools, as a matter of fact, do not have enough power and time to prevent or stop it after school times. Meanwhile, most parents do not have enough times to accompany and control their children. So, the students have large opportunities to do with multimedia games or online games or browsing *the negative and porn sites*. Having been addicted, the students will have too little time to study, and even do not want to attend classes.

In such situation, education institutions play an important role to eradicate these problems. One of which is by facilitating the students to do edutainment or educational games. Schools can let their students be familiar with educational games adjusted by their teachers. Besides, they can also support and facilitate their students to have their own blogs in the internet. A lot of Weblog providers are free to the users, such as *WordPress*. In their blogs, the students can create and write something, like an article, poem, news, short stories, features, or they can also

express their opinion by an online forum provided in the internet. They are able to share experiences throughout their blogs to others from all over the world. I think it will be an interesting activity for them, and *it will lessen their time to visit the negative or porn sites* existed.

By doing so, I think our young generation will get more and more information and knowledge by browsing in the internet. They can also create innovation in web design that it may be out of the formal curriculum content, but it will be useful for their future.

- **Fourth,** the implementation of ICT in education has not been a priority trend of educational reform and the state paid little attention to it. Therefore, there should be an active participation, initiative and good will of the schools and the government institutions to enhance ICT implementation at school.
- **Fifth,** the teachers should be the main motivator and initiator of the ICT implementation at schools. The teachers should be aware of the social change in their teaching activities. They should be the agent of change from the classical method into the modern one. They must also be the part of the global change in learning and teaching modification.

The followings are the aim and objectives of ICT implementation in education: 1) To implement the principle of life-long learning / education.
2) To increase a variety of educational services and medium / method. 3) To promote equal opportunities to obtain education and information.
4) To develop a system of collecting and disseminating educational information. 5) To promote technology literacy of all citizens, especially for students.
6) To develop distance education with national contents.
7) To promote the culture of learning at school (development of learning skills, expansion of optional education, open source of education, etc.)
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DO ICTS HELP CHILDREN TO LEARN BETTER?

Evaluating technology projects is notoriously difficult. Even more so is the evaluationof educational interventions. School influence on pupils‘ academic or social outcomes explains only about 12 to 15 per cent of the variance, leaving 85 per cent or more to be explained by the influence of factors such as the child‘s family background, lifetime experience, natural ability and so forth. Many early experiments with ICTs in classrooms were based on nothing more than enthusiasm or hunch. However, the growing emphasis on the need to show concrete benefits has led to more attempts to evaluate the impact of computers in classrooms. But evaluating ICTs in education is particularly hard, for a number of reasons.

Even in schools that make extensive use of ICTs, the amount of time spent using them in class is still generally tiny in relation to the time spent using more traditional teaching tools, from blackboard and chalk to photocopied handouts. In Britain, children use ICTs for an average of 45 minutes a week in primary school, and for one hour and 15 minutes in secondary school. In addition, technologies and the way they are applied both vary greatly from one school or university to another. Many studies merely collect examples, rather than attempting to gauge teaching effectiveness. Many, too, attempt to measure the effectiveness of ICTs against quantity measures—how many computers, how much ICT software, and so forth—instead of attempting to assess quality, by looking at the ways ICTs is deployed in the classroom. One of the most thorough attempts to set out the measurement issues in the evaluation of ICTs in schools, published in April 2002, picked out three problems:

1) ‑Terms such as ‗technology' and ‗technology integration' mean different things to different people.‖
2) ‑Most of the measures used in evaluation are ‗home grown'…measures that directly measure the effects of each grant.‖
3) ‑There is a tendency to focus more on short-term outcomes and effects, rather than seeing the interventions as part of a total package designed to change how schools' function.‖

CAN THE USE OF ICTS HELP IMPROVE THE QUALITY OF EDUCATION?

Improving the quality of education and training is a critical issue, particularly at a time of educational expansion. ICTs can enhance the quality of education in several ways:

- by increasing learner motivation and engagement,
- by facilitating the acquisition of basic skills, and
- By enhancing teacher training. ICTs are also transformational tools which when used appropriately, can promote the shift to a learner-centered environment.

ICTs such as videos, television and multimedia computer software that combine text, sound, and colorful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process.

The teachers strongly felt that the visual aural combination if integrated judiciously with the textbook and syllabus, can work wonders in getting across abstract concepts and logics to the children in a short span of time. The potential of each technology varies according to how it is used. Haddad and Draxler identify at least five levels of technology use in education:

a) Presentation
b) Demonstration
c) Drill & Practice
d) Interaction
e) Collaboration

DOES ICT-ENHANCED LEARNING REALLY WORK?

The educational effectiveness of ICTs depends on how they are used and for what purpose. And like any other educational tool or mode of educational delivery, ICTs do not work for everyone, everywhere in the same way. It is difficult to quantify the degree to which ICTs have helped expand access to basic education. Since most of the interventions for this purpose have been small-scale and under-reported. Further, as the Head Teacher of one of the schools added, anything has its ‑uses and abuses‖ and the same holds for ICT in education.

MOST EFFECTIVE FORM OF ICT IN EDUCATION

The use of videos came across as the most effective ICT component in our teacher interviews. It was stressed by those using and wanting to use videos in educations that creativity in presentation is just as important as the use of innovative media. Educational videos now encompass multimedia CDs, interactive games, flash and 3-D animation, slide-shows (like PowerPoint), video books, digital story-telling and many other forms that imaginatively combine visuals with text and audio that can be delivered on a range of platforms. Following current discussion forums on ICT in education, it is seen that videos can be used in a range of learning environments, such as to enhance learning in classrooms, train illiterate women on basic life skills, teach children from nomadic tribal communities, and encourage children to make their own video films on Vikramshila Education Resource Society Shikshak Sammelan 2009 local issues of concern. Moreover, videos can also be made accessible to the blind, as some organizations are doing using ‗audio description.' Various organizations have produced videos on a range of topics including disaster management, child rights, forced migration, adolescent and gender issues and HIV and reproductive and sexual health topics.

Commenting on the ability of video to simplify complex subjects and engage children, teachers pointed out topics with strong visual contexts – like scientific evolutionary theories, planetary movements and geographical topography, geographical phenomena, biological phenomena – which can be quite difficult to grasp if taught using conventional methods – or ‗hard spots' in the curriculum that can be brought to life through videos. Additionally, they shared examples of films being used in regular school syllabi subjects like for social studies, science and Math's that have proved effective. While noting the positive impact videos can have on education, it was felt that educators often view the use of videos as an alien feature outside the regular curricular teaching and thus the challenge is to integrate videos into day-to-day teaching. They contended a clear policy emanating from a broad consultation on using ICT in education is necessary. If ICTs are used, teachers and schools need capacity building to recognize educational videos as an extension of the experiential aspect of learning and not merely as a visual alternative to textbooks. Teachers also identified obstacles like

- the lack of computers,
- TV sets and

 video playback systems in most schools and argued that a whole transformation is needed at the grassroots, requiring the collaboration of multiple agencies.

ICT AND TEACHER TRAINING

a) Teachers are no longer dispensers of knowledge but proactive facilitators. b) Redefining the role of the teacher in the new information age.

c) The quality of teachers as a predictor of student learning therefore the importance of teacher training is heightened- in this light what is the role of ICT as a tool facilitating teacher training Vikramshila Education Resource Society Shikshak Sammelan 2009, *ICT for Quality Education.*

d) Bringing teachers to ICT rather than taking ICT to teachers- relevance in developing nations.

Many teachers are reluctant to use ICTs, especially computers and the internet. Some of the reasons for this reluctance include:

- poor software design,
- Skepticism about the effectiveness of computers in improving learning outcomes, lack of administrative support,
- Increased time and effort needed to learn the technology and how to use it for teaching, The fear of losing their authority in the classroom as it becomes more learner-centered.

CONCLUSION

Therefore this paper is an attempt to present the important issues that must be addressed by both pre-service teacher's education and in-service teacher professional development programs if schools and other educational institutions are to fully exploit the potential of computers and the Internet as educational tools.

In terms of using internet and other ICT as a resource for lesson preparation, most of the teachers interviewed, admitted to never or rarely using it, while very few used the internet to gather information sporadically or regularly. The teachers particularly felt that they had both access and training inadequacy and hence were unable to utilize internet and other facilities. More teachers were comfortable however, with using computers as an individual than as a teacher. A positive find is that all those teachers who are not well versed with the computer and other technology, expressed keen interest in undergoing training for the same. They felt that if trained, they would be in a position to make use of resources available in the school.

Support of school administrators and, in some cases, the community, is critical if ICTs are to be used effectively. In addition, teachers must have adequate access to functioning computers (or other technologies) and sufficient technical support. Shifting pedagogies,

redesigning curriculum and assessment tools, and providing more autonomy to local schools all contribute to the optimal use of ICTs in education. Very few strong examples of integration of ICT into classroom teaching learning is visible, though some schools do use the audio visual aids and integrate teaching of some lessons. Largely however, even where ICT is used in the classes, it is usually as an information source and not a part of core learning process.

REFERENCES

[1]. *Mediha Tezcan.*, The Role of Education and ICT in Economy *Proceedings of the International Conference on Human and Economic Resources*, 2006, pp 338 - 347 from Izmir University of Economics.

[2]. Sharma Parul. Approach To ICT in Library Training, Education & Technology: Issues & Challenges. ICAL, Poster paper, 2009. [3]. Shiksha Sammelan 2009, Kolkata. ICT for Quality Education, Vikramshila Education Resource Society.

[4]. Irvin R. KATZ, USA. ICT Literacy: Integration & Assessment in Higher Education. Systemics, Cybernetics and Informatics Volume 5 - Number 4, P.50-55

[5]. Adeyinka Tella and Emmanuel Olusola Adu, Nigeria. ICT & Curriculum Development: the challenges for education for sustainable development. Indian Journal of Science and Technology. Vol.2 No 3 (Mar. 2009) ISSN: 0974 - 6846.

[6]. John LeBaron. Research Report for GeSCI Meta-Review of ICT in Education Phase One -Partial document-17 April 2009.

[7]. Ron Oliver, Australia. The role of ICT in higher education for the 21st century: ICT as a change agent for education.

[8]. Saverinus Kaka, S.Pd. *"THE ROLE OF ICT IN EDUCATION SECTOR"* **Victoria L. Tinio., ICT in Education. July 25,2008.**

[9]. John Daniel., ICT in Education: A Curriculum for school & programme of teacher development.

[10]. Reza Salim, Associate Director, BFES. 25 May 2004 . WSIS and Bangladesh, World Summit on the Information Society,Geneva,2003.

[11]. Frances Cairncross, Management Editor of The Economist, and Kaija Pöysti,Partner in Blue White Venture, a consulting company. -ICTs for education and building human capital‖ forms part of the *Visions of the Information Society* project managed by Lara Srivastava.

[12]. -THE IMPORTANCE OF ICT‖, Information and communication technology in primary and secondary schools, 2005/2008. Summary of the Ofsted Report – Ref No: 070035, *February 2009*