Integration of Information and Communication Technology (ICT) into the Education System of Yemen: The Need of the Hour

By

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Abstract

During the twentieth century, the world underwent a great transformation from being an agricultural society where natural labour was a critical factor, to being an industrial one where management of technology, capital and labour provided a competitive advantage. In the ensuing 21st century, however, a new society is emerging where knowledge is the primary production resource. The contemporary society is inevitably and irrevocably a knowledge-based unit where knowledge is closely supported and followed by technology: mainly, Information and Communication Technology (ICT). It therefore, becomes a prerogative of education to provide educators and others with the much-needed basic ICT proficiency. This underlines the need for restructuring the education system in such a way so as to equip it to prepare people to competently man positions in business, services and other sectors, effectively and efficiently. There seems, therefore, a strong and urgent need for an increased awareness of the benefits of integration of ICT into the education system on the part of policy-makers in Yemen. During the last three decades, there have been revolutionary changes in the realm of Information Technology as a result of the convergence of computer, telecommunication and industrial technologies which have been tremendously affected by the communication technology and processes, besides being impacted by the phenomenon of globalization. Here steps in education with its significantly supportive role of preparing a workforce with an effective ITC capability and efficient language proficiency that aims at enabling the masses in upgrading the comprehension and integration of skills that are indispensable in competing in the world economy. This paper discusses the need for integrating ICT in the said emerging context. Furthermore, it also throws a flood of light on the challenges and opportunities of implementing the above mentioned pointers as a planned process. This paper is, therefore, an attempt to put forth a few suggestions that are likely to help in promoting an enhanced use of ICT in the education system. The researcher hopes that this paper would help the policy makers in framing some valuable education plans for schools, colleges and universities that would not only help in integrating ICT into the curricula but also facilitate in generating a workforce well equipped with communication and other skills, besides being reinforced with the back-up of ICT as a competitive advantage. The researcher strongly believes that a teaching-learning experience coupled with ICT would definitely go a long way in equipping the high school children with the requisite knowledge and experience required to compete and flourish in this highly competitive world.

1. Introduction

The use of technology in language teaching is not new. Since times immemorial, technology has been a part and parcel of language-teaching provided we consider the blackboard, the most common teaching aid in almost all language teaching classrooms world over, as a form of technology. Audio-video aids and language laboratories have also been in vogue as early as 1960s and 70s and needless to say, they still continue to rule the roost. As a corollary to the inception of computers into the teaching-learning process over the past decade or so, the Power Point Presentations (PPT) have gained immense popularity. In fact, almost all the students around the world irrespective of the nature of courses in which they are enrolled, are required to present project reports using PPTs through LCD projectors during their academics.

It is another known fact that computer-based materials used for language teaching, often referred to as CALL (Computer Assisted Language Learning), appeared on the scene in the 1980s. Before any drastic improvements were made, the early CALL programmes typically required learners to respond to stimuli

on the computer screen and carry out tasks such as filling in gap texts, matching sentence-halves and doing multi-choice activities. Probably one of the best known early CALL activities was that of text reconstruction, where an entire text was blanked out and the learner was required to re-create it by typing in words. For all of these activities, the computer then offered the learner a feedback, ranging from simply pointing out whether the answer is correct or not, to providing a more sophisticated feedback, such as, showing why the learner had committed a given mistake and then, offering a host of remedial options to choose from. As a matter of fact, The CALL approach still holds a strong foothold and is found in numerous language-teaching based CD ROMs.

It goes without saying that as access to ICT has become more widespread, CALL has taken giant leaps and moved beyond the use of computer programmes to embrace the use of the internet and web-based tools. Technology has immensely enhanced the possibilities of language learning using the Internet and Communication Technology.

It is therefore, undoubtedly, an open secret that English language learning is a critical move for Yemen to claim its rightful place as an active player in the world economy. The need of the hour, therefore is for its people to come out of their traditional fetters, inhibitions and apprehensions and, embrace English as their second but equally important language as the first, in the modern context.

As is evident, English is a foreign language in Yemen as elsewhere, barring a few western countries. It is taught for three years at the preparatory stage of education, and for another three years at the secondary level in all government schools in Yemen. All in all, the Yemini students on an average study English for six years before entering the tertiary stage, which is similar to most other situations where English is taught as a foreign language. However, most Yemeni learners of English encounter a unique language-learning problem. While they receive the 'knowledge of English' as effectively as their western and other counterparts, they are unable to use it in-and-out of the classroom. Although the cited aim while teaching the Yemeni students this language is to enable them to use it competently and effectively, as also to enable them to pursue higher education, this objective, in most cases, is, sadly, not achieved. One persistent problem being faced by the English Language Teaching (ELT) scenario in Yemen is that the teachers of English are not well trained. They teach it in a traditional way, focusing on teaching only the grammatical items in a graded manner (Al-Ahdal, 2011). The learners are exposed to the use of English in a very limited sense. Being sentimentally attached to the language of the Holy scriptures (Arabic), there is resistance to the use of English in informal situations. Therefore, regular and sustained practice of oral-aural English skills is lacking in the Yemini practice of English language teaching. Though having much linguistic input, the Yemenis, therefore, fail to communicate/speak fluently in English outside the classroom. However, ICT can definitely go a long way in addressing the issue of improving the communication skills and language proficiency of the students: learning will be less rigid and more fun as modern devices and computers are very user-friendly. There are many kinds of softwares, Interactive blackboards, Compact Disks (CDs), Digital Video Displays (DVDs) as well as Television (TV) programmes that can be utilized for this purpose. Language labs are another great learning pathays in this regard.

Speaking of English vis a vis ICT. It must be noted that English is the dominant language of the Internet. A large section of online content is in English. This is also true for educational software produced in the world market. For countries where English language proficiency is not high, especially in non urban areas, this presents a formidable barrier to maximizing the educational benefits of ICT due to a dearth of the knowledge and exposure towards the English language.

It therefore, becomes imperative to develop culture specific content in such scenarios. For instance, if story telling is being used for teaching school children at the primary level, then the setting, characters and central idea of the given story has to be such that children identify with the elements.

Even in countries where English is a second language (such as, India) it is highly recommended and rather, made sure that language teaching and learning materials that match national curriculum requirements and have locally identifiable content, preferably in the local languages, be developed to retain the learners' interest . (See Box 6.) This would ensure that the Web is a genuinely multicultural space and that people of different cultures have an equal stake and voice in the global communities of learning and practice online. Particularly vulnerable to exclusion of this sort are isolated, rural populations, cultural minorities, and women, in general. Thus, attention must be paid to their special needs.

It is noteworthy here that Yemen lags behind in the field of ICT in education. In the rural schools and colleges of Yemen, teachers, students and administrators are not even aware of the existence of ICT, what to speak of its usefulness when applied and integrated into the system. Although ICT in education is well integrated into the system as far as the private sector is concerned, there is much to desire in this direction in the government sector. The reason behind this is the narrow, conventional approach adopted by the leaders of these institutions. The silver lining is that this drawback is not merely at the psychological level as the physical paraphernalia is present in these institutions as well. The government has to act fast to catch up with the advanced countries, offering alluring incentives to promote its aim. ICT proficiency has to be made mandatory for teachers, to begin with.

What does ICT mean?
ICT stands for Information and Communications Technology. In a report published by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), ICT is defined as a *"diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information"* (Blurton 1999, p.1).

A point to be noted here is that technology is not limited to only machines and equipments, but also implies an extension of human abilities, competencies and talents in using those machines and equipments to access, process, apply, store and retrieve information through data-base management. This is possible by overcoming the barriers of time, space, expenses and efforts, besides the psychological and cultural barriers.

How beneficial is integration of ICT in Education?
The integration of new technologies such as internet, educative films, power point presentations etc in education has great psychological, social and educational advantages, some of which have been listed below. ICT in education:
- Breaks the monotony of the normal classroom teaching that sets in through traditional instructional techniques (mostly the chalk and talk) and mostly, one-way communication process.
- Creates manifold learning interests among students due to great audio-visual effects, discussions, films, stories, presentations, live or rehearsed demonstrations presented through the medium of ICT.
- gives access to a reservoir/pool of information on different subject areas provided through various sources such as the internet, electronic encyclopedias, etc
- Provides students with unforgettable sensory experiences that arise as a result of their involvement in the lessons under discussion.
- helps enhance students' listening and speaking skills.
- provides teachers with a technology-based teaching methodology which saves time and proves interesting for their learners.
- helps teachers keep pace with changing patterns of education with the help of knowledge provided by various updated knowledge databases and softwares.
- broadens the mental horizon and contributes to a balanced development of the child with less fatigue and least pressure for comprehension.

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As a valuable validation to the above mentioned pointers, views of some of the distinguished thinkers and researchers with regards to ICT have been mentioned in the following lines.

Richards (2004), rightly observes: *"ICTs represent a powerful force for potential change in education as well as society, the effective integration of ICT in education itself requires a kind of cultural change to a more dialogical, convergent and grounded perspective on the relations or links between: practice and theory, doing and thinking, informal and formal learning and various other related connections between bottom-up and top-down imperatives in education" (p. 350).* Further, recounting the importance of integrating technological tools into the education system, the American Secretary of Education, Rod Paige, in his speech at the release of the National Education Technology Plan in January 2005, stated *"Computers have changed the way the world works. Moreover, we need to make sure our children have the skills to compete in this new global economy. Every single child deserves the opportunity to succeed in the 21st century. They have grown up with the World Wide Web at their fingertips. Many of them cannot even remember a word without the Internet. They see the potential for computers to revolutionize the classroom. And they are worried schools are not keeping up with the times. We must not fall behind. A business that does not keep pace with change will soon be out of business. And our schools are no different. We must seize the moment and the 24 new opportunities before us.' No Child Left Behind' has given us a mission. And technology offers us another means to achieve it". (p. 1)*

In her article, 'National Policy on ICT in Education', Sharda Sinha, summarizes the impact of technology as under:
1. *Education will become highly interactive, engaging the student every 20 seconds or so for a response, much in contrast to present-day passive lecture methods.*
2. *Education will become highly individualized, with world-accessible records of learning attempts by particular students, to enable computer presentation of education tailored for each student's level of learning, experiences and styles.*
3. *Education will become highly flexible in interaction, enabling natural-language tutoring.*
4. *Education will become highly accessible, opening opportunities for the disadvantaged in this country.*
5. *Education will become highly computer-mediated.*
6. *Distance education will begin to displace campus-based education because the high costs of an interactive computer-mediated course (e-education) can be justified only through their use by a large number of students.*

Ali Nihat Eken (2002), speaking of the advantages of ICT integration in the ELT classroom observes:

> *"When chosen and exploited in a practical manner, films can have an important role in modern English Language teaching, too. They can bring the outside world into the classroom by presenting realistic slices of life; motivate students and encourage them to communicate with each other more eagerly; help them learn non-verbal communication, as well as other cultures and cross-cultural differences"* (para. 2).

Brinton (2001), also asserts that multi-media tools serve as an important motivator in the language teaching process because *"media materials can lend authenticity to the classroom situation, reinforcing for students the direct relation between the language classroom and the outside world"* (p. 461).

It is therefore, an established fact that the rapid developments and innovations in the field of IT in today's modern and virtual society have certainly thrown open challenges before the education system. The new information technologies provide access to vast amounts of information. If this information is handled properly and competitively, IT would undoubtedly, promote the quality of life in general. Hence, if we wish to reap the wholesome advantages of information technology, the education system needs to be

geared up with utmost determination and a time-bound plan to face the multifarious challenges that lie ahead with regard to teaching, research and educational administration. It goes unsaid however, that there is no place for complacency: laggards are bound to remain backward and obviously suffer in terms of productivity, competitiveness and standards of living.

What Challenges are perceived for inducting ICT in Education?
In general, the challenges which the education system has to address and be immediately concerned with, include:

- Eradication of general illiteracy which in turn can eradicate poverty, deprivation and hunger.
- Changes in the entire educational scenario as a result of information inundation, which is, as a matter of fact, normally complicated by population explosion.
- Teachers' lack of knowledge and skills with regards to handling and using hi-tech equipments/instruments/aids in education, and their poor level of awareness about instructional materials and methods. In a nutshell, teachers are in a helpless position, unable to cope with changing expectations and demands.
- Upgradation of schools that suffer from poor infrastructure.
- Raising parents' awareness of the usefulness of information technology for their children. After all, parents' function as catalytic agents in this regard.
- Problem of funds. Authorities have to accord due priority to education.
- Lack of professionals with skills required to identify users' needs to organize and store information, add value to information, conduct research, evaluate information and possess up-to-date subject knowledge.
- Lack of management professionals who can understand organizational culture, manage projects and finance; manage change, conduct strategic planning, manage human resource development and communicate effectively.

It is therefore, understandable that in integrating ICT in education, some challenges and difficulties are bound to arise on the part of teachers as well; they are after all not immune to them. Some of these challenges as visualized by me are listed below:-

- Teachers need to monitor whether or not the students are making full use of what is being done in the class.
- Teachers need to be trained for making the optimum use of the ICT tools in an efficient and fruitful way.
- As for the use of internet in the class, teachers need to monitor whether or not the students are able to follow and comprehend the instructions given to them.
- Distractions need to be taken care of, for an optimum utilization of ICT resources.
- Teachers need to engage students in various types of project works in order to facilitate them to explore, select, analyze and present electronic assignments, reports or presentations in the classrooms.

Warschauer, Knobel and Stone in 2004, conducted a valuable qualitative study in which they compared the use of new technologies within a cluster of socio-economically higher versus lower high- schools in California, USA. As a by-product of their study, they investigated the difficulties that most of the teachers experienced while integrating technology into the school curriculum. Based on their findings, they classified these difficulties into the following three groups:

1. *Workability:* This refers to how efficiently and effectively the equipments and networks actually function without any interruption. Many teachers in the study conducted by Warschauer, Knobel and Stone voiced their strong dissatisfaction with having to plan back-up lessons, in case the technology they chose to use was not working properly.

2. *Complexity:* This includes the logistical challenges of integrating computers into instruction, such as taking students to the computer laboratory, knowledge of differential skill levels with basic computer operations and lack of access to computers for home assignments.

3. *Performativity*: This refers to an emphasis on skills rather than on more meaningful applications, such as locating and evaluating search engine results. Teachers have always emphasized on performance of technology-related activities, even at the cost of devaluing the process.

What can the education system do?

As stated earlier, we are operating in a knowledge based economy wherein knowledge lies in the minds of people as well as in organizations – in the form of reports, files, documents, databases and performance processes. It is another fact that today's world is a global village where knowledge is just a click of a button away. The quality of human resources therefore, is a deciding factor in the success of any nation or country in the present scenario. The intellectual capital of a country is now becoming a more important and critical factor than other resources - natural or financial to compete in the global economy. The barriers of time, distance, language, limited local competence and resources are fast disappearing. In short, today's business is virtual and its drivers are ITC, technology, computer power and telecommunication. Needless to say however, that the competition is severe and almost neck-to-neck.

In order to survive in this highly competitive world, the first important requirement is of well-trained technical people who are equipped with equally good managerial skills. As is evident, a country's strength lies in its ability to produce, absorb, store, retrieve, update and disseminate knowledge. And it is in this context, that innovations in information technology and telecommunications have changed the type of workforce required. Information technology has therefore, greatly impacted the structure and functioning of human resource industry and its management. Automation of machinery, use of management information system, and HR development are some of the important developments that are facilitating in opening new avenues for tapping the specialist manpower.

In is in this context that the quality of education being imparted in Yemen needs to be redefined so that it conforms to the acceptable global standards. In order to achieve this, the educational standards in Yemen undoubtedly, need to be enhanced at all levels and made comparable with the best in the world. In order to meet this demand of the industry, numerous private sector institutions have sprung up throughout the length and breadth of the country during the last century.

However, a noteworthy point in this regard lies in reference to the quality of education being provided by these private-sector institutions in the absence of any regulatory agency. It is no secret that that these institutions are charging exorbitant fees from young aspirants on the pretext of imparting premier and proper education. Despite the heavy amount of fees being extracted from the aspiring students, when it comes to adapting new technological innovations in their operations, the institutions in question almost play a deaf ear. The responsibility as is evident in such a scenario, ultimately, falls on the country's public sector education system. The system needs to prepare such manpower as can face the challenges of this changing world where technology touches almost every aspect of human life. As is a well-established fact world over, technology continues to rule the world in more ways than one. Pragmatic policy-makers hence, should aim at producing graduates that the society needs (graduates that can market themselves and sell like hot cakes). And this is possible only if work-related education i.e. vocational education is imparted to the students at various levels of the educational ladder with the aid of ITC in order to generate homogeneity and compatibility in the global arena. This tremendous and highly recommended change can happen only by restructuring the nation's educational system, through necessary changes in the curricula at the school, college and university levels, keeping in view the overall framework of the national policy which too needs to be reoriented in order to compulsively make place for ITC.

It is only then that a desired educational system would be brought into practice that would aim not only to transform learners into competent persons in order to lead a dignified personal life with high standards, but also enable them to function as versatile human capital. It is therefore, noteworthy that such a system has to adapt its curriculum to include technology as not only an important field of knowledge, but also as one of its inseparable/integrated components. This will help the young students to adopt mandatorily the new technologies and utilize them rationally, efficiently and effectively. Considering the fact that communication skills are the cutting edge tools to forge ahead, educational institutions and commercial organizations must collaborate to lend the much-needed support for these changes at the level of re-designing the system of education in general, and higher education, in particular.

The education system currently emphasizes the student's mastery of a large mass of materials without developing the skill of comprehension - the basis of any language study and communication. Theory is more and practicals are fewer, rather, nominal. Therefore, I feel that with the help of some TV, DVD and computer CDs/ programmes, education should be re-oriented towards developing the individual's creative and broad based thinking, self-esteem, problem-solving capability and his ability to cope effectively with various situations. As we cannot ignore the spiritual aspect from material, sincere endeavours are necessary to revamp the educational process in order to focus on character building, inculcation of moral values and popular sentiments like patriotism, honesty and social responsibility. This change in approach must be adopted at the grass root level itself - right from the initial stage of the child's education, as that stage is the nursery of ideas, instilling values and imbibing cultural ethos for practically life-long inner support. Emphasis has to be laid on including philosophy and history to foster intellectual curiosity and respect for variety and diversity and broadening understanding of different cultures and civilizations, thus, building a society reinforced with values and virtues of sorts which help in gaining sound knowledge essential for coping with today's disturbed and strife-ridden world and the enhancement of competency in different disciplines.

2. Conclusion

There was a time when muscle power won, then came the time when the longest sword had its sway. Now is the time when the fattest purse would emerge winner. For a fat purse, the economy has to grow and develop by leaps and bounds, and the key driver for this of course, is none other than information. Information technology and communication have usurped the top place in the hierarchy of enabling factors for achieving the top slot for a happy and comfortable life with the availability of products and services on command. This scenario is possible only and only through a modern and well-organized education system that is effectively enriched and backed by ICT. With ICT, a win-win situation is inevitably at just an arm's length. It wouldn't therefore, be wrong to give a clarion call to all educators and administrators and claim that 'rush, adopt, master, benefit with ICT or, perish without it– there is no alternative'.

Therefore, there is no doubt that the integration of ICT in the educational system can improve the quality of education in our schools and universities in more ways than one. ICT is now considered not only necessary to improve our education system to upgrade the quality of our students, but also, a new source of income in the world economy. Necessary steps need to be taken by the policy-makers and planners and other higher executive authorities in the education system in Yemen for popularizing ICT not only at the academic but also the socio-economic level. It is in this regard that I have given below a few action points for serious and prompt consideration:

- enhance the awareness of policy-makers to the advantages of information-based learning environment;
- establish well-equipped IT academies for preparing master trainers as resource persons who can efficiently train others in the use of ICT in education ;
- conduct regular, need-based, pre-planned in-service reorientation programmes for teachers in the integration of ICT into their teaching technology/methodology.

- provide schools and universities with well-equipped labs that contain the latest versions of ICT equipments (computers, overhead projectors, LCD Projectors, Internet, broadcasting technologies e.g., radio and television, etc.);
- establish ICT clubs in schools and universities to enhance interest for ICT among students;
- appoint well-qualified technicians for proper maintenance of these ICT assets and information resources so that they can render continued service.
- introduce a course "ICT in Education" in the Curriculum of university departments so that students can be made aware of its existence and benefits .
- provide sufficient funds to academic institutions for recruitment and training of well-qualified ICT Faculty and to provide facilities;
- provide personal computers/laptops to teachers at both schools and universities;
- give some sort of recognition to those who show good interest in ICT, and prepare and implement good and useful ICT-based projects .This can be in the form of financial or/and promotional incentives.
- Introduce a plethora of group discussions, story-telling and case study methods to develop soft skills (comprehension & communication).
- Organize inter-university ad inter-college competitions as part of syllabi and winners given public recognition (awards).
- Actively include ICT in every pre-training course and also the in-service training programmes. The planners must provide for online libraries, e-comprehensive evaluation and assessment, easy monitoring for the parents regarding the school progress of children and scholarships for the children with use of ICT.
- The focus must be to provide guaranteed quality knowledge and 'smiling learning' that makes every student an effective user of technology.

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