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Information and Communication Technology in Education

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Introduction: Education in its general sense is a form of learning in which the knowledge, skills, values, beliefs and habits of a group of people are transferred from one generation to the next through storytelling, discussion, teaching, training and research. Education may also include informal transmission of such information from one human being to another. Education frequently takes place under the guidance of others, but learners may also educate themselves (autodidactic learning). Any experience that has a formative effect on the way one thinks, feels or acts may be considered educational. Education is commonly and formally divided into stages such as pre-school, primary school, secondary school and then college, university or apprenticeship. The science and art of how best to teach is called pedagogy.

Importance and Role of IT in the Education

By considering that education has been using the technology for expanding and developing different processes of the educational system more than one century (Hadid 2000), it is not surprising that new technology arrival has raised the interest in obtaining knowledge by various methods of presenting knowledge. Today technology-based education is attainable at the universities of developed countries. Smart schools have made a leap in virtual learning. On-line learning and remote training are among new education forms in the new century (Ataran 2002). By evolving the learning environments at the beginning of 21st century, individuals and societies put heavy responsibility on the

shoulder of educational institutions and their traditional structures by their increasing need of education.

Today various informational and communicational technologies have the ability of facilitating the education and learning process (Passey 2006). Also there is evidence stating that information technologies provide effective and inflexible methods for professionally developing teachers in a study under the title of "The students view of sciences during transferring from rich technology environment at the elementary course to the high school with low technology equipment" concluded that although the high school students were annoyed by insufficient access to computers and other information technologies, they enjoyed the course by the efforts of sciences teachers. Most major properties of the education system in information and communication age are:

1. In new education, what is worthy of knowing and what is necessary is stored. Not the learning of all information (Loveless and Ellis 2001).

2. In new education, the teacher helps the student to obtain, select, evaluate and store the information by the use of vast scope of sources.

3. Printed magazines and books are knowledge sources; the drafts determined for writing and publishing are replaced by online books and magazines.

4. Some advantages of using technology and IT in the Education: students learn their lessons by using technical tools in less time (Fletcher & Others 1990).

By the use of information technology and its tools especially computer and planning modern tutorial programs such as virtual tutorial program, possibility of expediting the process of information dissemination, various recognizable and repeatable learning sources, more flexible structure, information search and also possibility of meta cognitive understanding have provided for students and they can use

this device as a tool for their educational activities so that this matter has raised the speed and quality of learning significantly

(Dilmaghani. 2003). High flexibility in when and where students and teachers perform their duties. Informational society; where economical, cultural and social life is dependent on information and communication technology.

Advantages of Informational society:

1. Enriching spare time.

2. Enabling teleworking.

3. Providing new opportunities for raising national productivity and competitive atmosphere.

4. Increasing employment.

5. Life-long education.

From the entities and the properties, academic information systems refer to a set of systems and activities that are used to organize, to process, and to use information as a source within an organization (Sprague and Carlson, 1982). The output of the information resulted from this system will provide information to the leaders or the decision makers that can be classified in different utilization and different purposes.

ICT in developing country:

Most ICT policies in developing countries seem to be mismatched with the country's context and culture. The native policy makers in developing countries do not always effectively use media technologies and often do not take into account nor consider the 'macro-level contextual dimensions' of their societies. In developing countries access to new technology can be denied for political or economical reason. Moreover, a lack of knowledge often prevails,

poverty is encouraged and progress is condemned (Joham & Hobson, 2003).

Developing countries need to learn within their own environment the way in which IT policy can be created and applied to serve their own country's needs (Pradhan, 2002). The linkage between ICT strategy, ICT projects and ICT use requires that the technologies and information system organizations should be implemented or used in an appropriate way.

Given the different perspectives at the macro and micro level, a clear socio-technical tension helps for exploring new technological opportunities (Wood-Harper & Wood, 2006). From a socio-technical viewpoint, for a system to be effective, the technology must fit closely with the social and organizational factors. Generally, there is no single technique that could deal with all IT investment projects and considering the context is an important aspect in every implementation (Wild, 1996). Only one research paper has been found to how these perspectives differ through a variety of technical and social dimensions. (Markus, 1983).

ICT in education:

The potential of Integrations Information and Communication Technologies to help people learn has not been largely observed until recently. Educators are beginning to comprehend the potential for technology to help students construct meaning for them based on learning activities. The information metaphor has triggered off a whole set of wild speculations about the necessity of educational reforms that will enable future citizens to survive in an information society (Pelgrum, 2001). The current belief is that ICT is not only the backbone of the Information Society, but also an important catalyst and tool for inducing educational reforms that change our students into productive handlers of knowledge. Rapid developments in technology have made tremendous changes in the way we live, as well as the

demands of the society. In recognizing the impact of new technologies on the workplace and everyday life, today's teacher education institutions must try to restructure their education programs and classroom facilities in order to minimize the teaching and learning technology gap between today and the future. Rajabhat universities were established more than fifty years ago; most teachers are very old and this may lead to obstructions in using ICT in their teaching and learning.

From qualitative (Fullan & Stiegelbauer, 1991) as well as quantitative studies it hasn been often argued that staff development is a very crucial factor in the process of adopting and implementing ICT in education. It seems that universities are very much aware of the relevance of this issue since most respondents indicated that it is their goal to train all teachers to use ICT. However, it is also noteworthy that in most developing countries there is a huge gap between the ideal and the reality. From previous studies, it has appeared that knowledgeable technical support personnel, regarding instructional use of computers, may be an important condition for facilitating staff development in the universities. Instructors often believe that technology usage is very important for teaching.

However, knowledge, confidence and deep understanding are also needed during the integration process. Furthermore, instructors should possess the skills and competencies essential to design, deliver and evaluate instructions and successful integration of technology requires not only the knowledge of the technology but also the skill to plan and execute a good lesson (Gülbahar, 2008).Therefore, universities must provide supplemental training to the faculty, and the same faculty must invest additional time adapting to the new technologies - time that might be otherwise spent on research or teaching (Bakia, 2000).

The use of ICT in Higher Education

Information and communication technologies consist of hardware, software, network and media for collecting, storing, processing, transmitting and presenting information (voice, ndata, text and image) as well as related services. ICTs can be divided into two components: Information and Communication Infrastructure (ICI) and Information Technology (IT). The former refers to physical telecommunications system and network (Cellular, voice, mail, radio and television) while the latter refers to hardware and software of information collection, storage, processing and presentation (Sarkar, 2012).

According to UNESCO (2002) ICT now permeates the education environments and underpins the very success of 21st century education. ICT also adds value to the process of learning and to the organization and management of learning institutions. Technologies are a driving force behind much of the development and innovation in both developed and developing countries.

Conclusion:

Four essentials impacting on ICT were taken into consideration: infrastructure, management, policies and human resources and emerging themes have been empirically derived from the data by exploring numerous (multi) perspectives which were then compared with relevant contemporary theory on ICT implementation in education. One of the basic principles of this framework is that each component is unable to stand alone and needs strong support from the others if ICT for education is to be adopted. However, the limitations and problems which impede the implementing of ICT in education will need more than money to solve them. Problems such as the policies, politics, culture and general lack of support from government are deep seated and will need strong and consistent advocacy to bring about educational reform. ICT provides student support services such as course outlines, digitally recorded classroom material, discussion

groups, laboratory manuals and lab assignments, lecture notes, live lectures for later viewing and re-viewing, links to course specific websites, online tutorials, supplementary readings, and virtual office hours for teacher-student consultations.

Virtual libraries are a particular boon to students as they cut down on costs of acquiring expensive textbooks, journals and reference material. Tools are available on the Internet to assist both teachers and students to manage writing assignments to detect and avoid the pitfalls.

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