



## ICT: AS A TRANSFORMATION TOOL FOR TEACHING-LEARNING PROCESS

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### ABSTRACT

*It is expected that learning happens everywhere and is life- long. Education is just the preparation for a high-level life-long learning and discovery. Learning opportunities are unlimited. Students can maximize the opportunities for their learning from local and global exposures through internet, web-based learning, video conferencing, cross-cultural sharing, and different types of interactive and multimedia materials with the support of ICT and networking. Students can learn from world- class teachers, peers and learning materials from different parts of the world. In other words, their learning can be world- class learning. In this context, the present write-up, from a systematic perspective, focuses on changing paradigms of 21<sup>st</sup> Century due to ICT enabled teaching learning.*

**KEYWORDS:** ICT, teaching and learning, educational paradigm.

### INTRODUCTION:

Over the last two decades there have been fundamental shifts in teaching and learning within the tertiary education sector. One is a move from teacher-centre to student-center education and another is a move from the traditional to the virtual classroom. However, there are indications that academics and student have not universally embraced this new educational paradigm. A further challenge faced by ICT educators is the rapidly evolving ICT discipline. Due to this, in many universities across the world, large- scale curriculum changes to the undergraduate degrees resulting in a set of foundational courses in their course of study.

Information and communication Technology (ICT) is presently a huge, rapidly changing and rapidly growing field. Similar is its understanding attributed in different contexts and times to the term ICT. Basically, ICT describes a full range of computer hardware, computer software and telecommunication facilities effective in the process of gathering, storing, retrieving, processing, analyzing and transmitting information .The term itself evolved from the basic Information technology (IT), that refers to the key components of computing technology, the software, the hardware and the basic skills required to use a stand- alone computer effectively. This term again transformed into the newer term “information and communication technology” (ICT), which adds an extra dimension, that of communication as a means of development. In this sense, ICT covers the use of technology for communication a key aspect for accomplishing the type of learning we consider meaningful way of using technologies for personal and institutional development. Among the several terms the term ICT is used particularly in educational process for the running of successful teaching and learning.

**The New Technologies as Teaching- Learning Resources**

It is already predictable that the use of ICT in education is enriching in many ways. Yet, there are voices arguing that this is time consuming, costly to implement, and with benefits that remain unclear. The way we understand the need of implementing the use of new technologies in educations process is depends on many factors, such as:

- Our overall understanding about quality teaching and learning, educational goals and values;
- The learning objectives we target;
- Our motivation and opportunities;
- The methods and teaching style;
- The social context and personal issues; etc.

The decision on when and how we integrate the new technologies in our teaching process is mediated by the particular configuration of the above mentioned factors. Yet as the UNESCO World Educational Report ( 2008) notes, “the new technologies challenge traditional conceptions of both teaching and learning, and by reconfiguring how teachers and learners gain access to knowledge , have the potential to transform teaching and learning Process.”

ICT provide an array of powerful tools that may induce the transformation of the present isolated, teacher- centered and text-bound classrooms in to rich student focused, interactive knowledge environment. Thus, if the first of the ICT tools and resources listed below in the table were still content centered and the last ones were merely process centered. Similarly, if the first mentioned tools are still tutor focused, the last ones are student focused, the tutor being a facilitator during the learning process. The most frequently mentioned ICT tools and resources successfully usable in education are listed below:

ICT tools and resources	Emphasize on	Tutor As
Web based resources Electronic Libraries& databases multimedia Resources	Contents	Expert(adoptive learning)
Productivity and analysis tools computer based assessments streaming video	Objectives	↓ ↓
Integrated learning environment Discussion lists& news groups Student web publishing Conferencing and videoconferencing	Processes	Facilitator (adaptive Learning)

**Student learning**

There are many potential uses for ICT in the learning process. In some situation changes in relevant institutions makes computer use in schools imperative For example, to provide course in music, technical drawing, statistics and business which do not incorporate computer use and reduces the relevancy of the courses. Here the rationale cries out from the work place but needs to be responded to with carefully constructed learning experiences. How much of our curriculum is made up of historical solutions to past problems? The curriculum needs to be updated continually to make account of the technology prevalent in society.

Any rationale for the use of computers in the large proportion of schooling devoted to ‘general ` education, such as: mathematics, social science, communication and language, requires much more critical examination. Consider the teaching area of mathematics and the problems associated with student learning. Mathematics has tended to be very abstract while most students tend to operate on a concrete level. The

use of concrete materials, in some lessons is useful but often not convenient. The computer can provide experiences with virtual concrete materials.

By approaching problems associated with student’s computer use can provide appropriate material and might be useful to overcome classroom management problems. However, a computer solution is not necessary to be the best solution. The problems associated with student learning are most often discipline and even teacher needs to consider the problems associated with student learning in his/her subject area and be aware of computer solutions,

**Management of Learning Experiences**

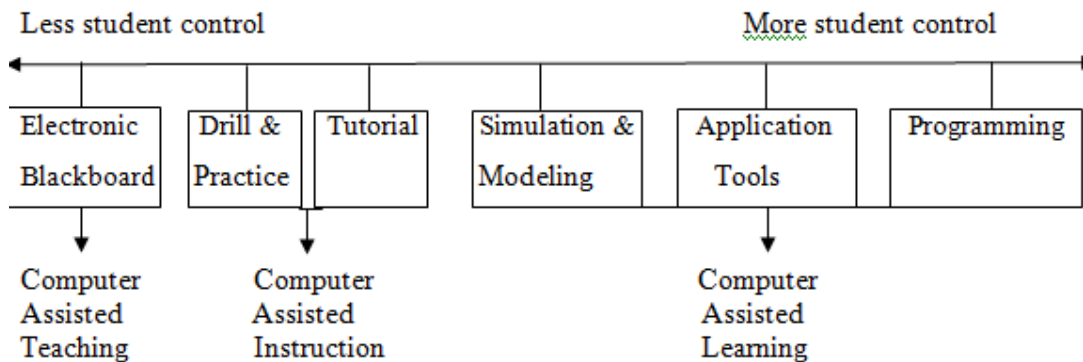
The management of high quality educational programme requires and generates large quantities and types of data. Teachers face many management problems while analyzing and this could be suitable for a computer solution. There are many such tasks which may be both time consuming and tedious for which teachers should consider a computer solution. Such tasks may include: the organization of assessments, the maintenance of library functions, the there are many school management packages which will complete tasks such as these and there by free up a suitable amount of time for other more important tasks. School should make use of the opportunity to continually provide more appropriate solutions to the dynamic problems associated with the provision of schooling.

**Access to Information**

There are a number for exposing students to using computers to access and present information in schools. First and foremost there is a need to respond to a mass of information. To some extent there is a social role in putting students in touch with other people and their ideas. Also the efficiency of bringing information to students and teachers provides an economic rationale. For up-to-date information or spasmodically used information it is likely that the off-site computer database accessed through the internet will offer the most cost effective solution to information needs. ICT does not only concern gaining access to information but also involves using computer systems to process and interpret the information, to make meaning and present information.

**Classification According to Degree of Learner Control**

The control of the learning sequence is seen to vary from situations where the teacher or computer is in control to others where the learner is the determinant of the process. The diagram below shows a spectrum of the different applications using common descriptive terms are defined.



These categories of use are briefly described in the table given below.

### A classification system for educational applications.

Classification	Description
Electronic blackboard	Teacher presents information as text or graphics to whole class.
Drill and Practice	Student revises knowledge and skills.
Tutorial	Student is presented with new information
Simulation	Student uses computer to create an environment whether realistic or imaginary.
Application Tools	Teachers and students tasks using software packages such as word processors, graphics packages and databases.
Programming	Student develops sets of instructions for computer in order to solve a problem.

A software package can not necessarily be classified by an educational application as it will depend on how the software is used. For example, a teacher could use a slideshow authoring package as an electronic blackboard application to present information on some topic. Alternatively students could use the package as an application tool to present their own interpretation they have collected. Similarly many software packages may be used as tutorials or drill and practice depending on the background of the students.

### The Implications for Teachers in using ICT

The potential reasons for us using ICT have implications for teachers associated with each one. Following table matches possible implications for teachers with the potential reasons for using ICT in the classroom.

Potential	Implications for Teacher
Dynamic learning	Students may learn outside the teacher's own area of expertise.
Student motivation	Students are easier to manage and direct towards the tasks.
Removing tedious tasks	More satisfying to direct less tedious tasks.
Instruction to fit the learner	Relieves the teacher from needing to spend a lot of time with students who need extra practice, catch-up or extension work.
Independent learning	Learning may not direct itself towards the teacher's objectives.
Extending student thinking	Student thinking may go beyond the teacher's experience

Teachers need to continually work at updating their skills and knowledge in the operation and use of ICT. This is in addition to their need to be up-to-date with curriculum content and pedagogy. It is therefore important that they be supported very carefully in practical and motivating ways.

### Teacher as a Manager

While computers can be used in a demonstration made most of the range of computer use involves computers being used by students. Therefore as indicated earlier this necessitates a more student-centered approach. A teacher-centered approach could still be adopted through use of selected demonstration and tutorial applications. To accommodate a significant role to the computer in the classroom there needs to be a number of changes to the role of the teacher. How significant these changes are for a teacher depends on what they perceive to be their current role. The teacher needs to become a catalyst for learning rather than being the focus. The teacher becomes a learning model for the students not an expert in everything. The teacher is a facilitator of cooperative learning by involving in real problem solving.

Teacher need appropriate communication and management skills. For example, clear instructions (verbal and written) have to be presented so that most students do not need to call on the teacher for assistance regularly, appropriate tasks have to be assigned to individual students, ground rule have to be established for interaction with other students and computer equipment and hardware have to be made available to students when they need them.

It is acknowledged that a problem for teachers using computers is evaluating whether students are engaged and with what further, teachers must evaluate student learning needs in order to provide them with appropriate tasks and software. Problems concerning evaluation require teachers to spend more time in one-to-one interaction with students and to have skills in interpreting student output ( e.g. spoken, written )

Student Responsibility for Learning

### Student's Role

While the teacher's role in the classroom is fundamentally important to computer-supported learning, the student's role is also significant. Students need to become more self-directing and motivating and thus take more responsibility for their own learning. This is not to say that the teacher has no responsibility. The teacher needs to provide a structure within which student can learn. This includes providing tasks, asking questions, providing resources, and setting ground rules. Students themselves can become the experts on particular topics.

Innovations involving the use of computers invariably place additional demands on students. For the students it may represent a new approach to learning in which they have to develop confidence and competence. It has been noted that there may be significant changes to their role. This may require them to develop skills concerned with taking more responsibility for learning and relying less on the teacher. They may need to develop skills in making decisions for themselves and with other students. In addition, practical skills such as the ability to follow instructions presented on paper, by a teacher or on a computer screen need to be developed.

Students will also need to develop skills in determining and assessing their own learning. For example, self-directed learning using computers usually have written information than verbal. Therefore students need to have increased levels of comprehension and concentration. Students need to develop skill in recording and evaluating their findings and progress. With the help of the teacher they need to be able to interpret their findings and make decisions for learning.

### CONCLUSION

There have been fundamental shifts in the tertiary education landscape, with the move from teacher-centered to student-centered learning and from the traditional to online learning environment. In ICT, these changes have been compounded by a fast-moving discipline that necessitates frequent course revisions, leaving students uncertain about their course content and educators uncertain about how to accommodate their student's learning needs. Today's education faces irrelevance unless we bridge the gap between how students live and how they learn. Students will spend their lives in a multitasking, multifaceted, technology-driven vibrant world and they must be equipped to handle the challenges of the 21<sup>st</sup> century effectively. It is obvious that the old pedagogical frame work of de-contextualized instructional practices and fixed curriculum is clearly inappropriate. With information having increasingly short shelf life, education must empower learners' continuous independent learning.

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