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ICT INTEGRATED EDUCATION: SHIFTING ROLE OF TEACHERS

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Abstract

Teaching-learning process is in the transition phase due to the rapidly changing global scenario where Information Technology (ICT) is playing a very important role.Presently our class rooms are not simply designed to feed the brains of the students, these are designed and equipped with higher level technology. Like other aspects of life, the teaching- learning environment among the educational institutions also came under the influence of highly digitalized techniques of ICT. It is generally believed that ICTs can empower the teachers as well as the learners to contribute their best in sustainable development of the nations. Its effective use can bring efficiency in teaching-learning process and also make excellent contributions towards the achievement of educational targets. This paper aims to identify the effective roles and uses of ICTs in teaching-learning process and also discusses the challenges and limitations that are imposed by the increasing use of ICTs.

Keywords*: ICT (Information and Communication Technology), Digitalization, Teaching- learning process*

INTRODUCTION

Present age is the age of information dominated by the digital technology. The digital technology has influenced all aspects of human life have caused many changes in society. These changes have not just been of a technical nature but more importantly of a structural nature. Like other aspects, the teaching –learning environment among the educational institutions also came under the influence of highly digitalized techniques of ICT.

The term ICT stands for Information and Communication Technology. Networking of computers gave birth to Information Technology. It includes computers, the internet, broadcasting technologies, telephony etc. UNESCO considered Information Technology as "Scientific technological and engineering disciplines and management techniques used in information handling and processing, their application, computers and their interaction with men and machines, and associated social, economical and cultural matters."

However, there is a basic misconception that ICTs generally refers to computers and computing related activities. Although, computers and their application play a significant role in modern information management, other technologies also comprise of the phenomenon. Pelgrum and Law (2003) stated that near the end of the 1980s, the term 'computers' was

replaced by 'IT' (information technology) signifying a shift of focus from computing technology to the capacity to store and retrieve information. This was followed by the introduction of the term 'ICT' (information and communication technology) around 1992, when e-mail started to become available to the general public. (Pelgrum. and Law, 2003)

According to United Nations Report (1999), ICTs cover Internet Service Provision, telecommunications, equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network based information services, and other related information and communication activities." The various kinds of ICT products available and having relevance to education, such as tele-conferencing, e-mail, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audio cassettes, and CD ROMs etc. have been used in education for different purposes. (Sharma, 2003; Sanyal, 2001; Bhattacharya and Sharma, 2007)

Therefore, knowingly or unknowingly we are surrounded by the variety of ICTs media. Information is transmitted to the users not only in textual form but also through audio, video or any other media. All these come under the umbrella of what are known as today's ICTs. Now when we talk about the education sector, one of the many challenges facing by it is that of preparing our youngsters and people for age of digitalization. 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 achievements of the students. According to Yusaf (2005), "The field of education has been affected by ICTs, which has undoubtedly affected teaching, learning, and research."

TRADITIONAL CLASS-ROOMS VERSUS MODERN CLASS-ROOMS

ICTs integrated class-room environment is no more taken as simple and traditional class-room environment because traditional class room teaching now can't support the technology integrated teaching. With the use of advanced technological techniques, training the teachers to learn to evaluate each medium in terms of what can be achieved in practice and which strategies needs to be adopted is now became must.

Voogt's Model of Pedagogy in the Traditional versus Information Society is worth mentioning here. **Voogt (2003) and Tinio (2002**) highlighted the grounded advantages of ICTs use in teaching-learning process while comparing it with Traditional Pedagogical approaches. By using ICT integrating methods and strategies to different aspects of learning

one can promote more meaningful and congenial learning environment in terms of active, collaborative, creative, integrative as well as evaluative learning.

OVERVIEW OF PEDAGOGY IN THE TRADITIONAL VERSUS INFORMATION SOCIETY (As adapted by Voogt (2003) from (Voogt&Odenthal, 1997; Wijnenet. Al., (1999)

Aspect	**Traditional Pedagogy**	**Emerging pedagogy for the information society**
Active Learning	Activities prescribed by teacher	Activities determined by the learner
	Whole class instruction	Small group
	Little variation activities	Many different activities
	Pace determined by the programme	Pace determined by the learners
Collaborative	Individual	Working in teams
	Homogeneous groups	Heterogeneous groups
	Every one for him/herself	Supporting each-other
Creative	Reproductive learning	Productive Learning
	Apply known solutions to problems	Find new solutions to problems
Integrative	No link between theory and practice	Integrating theory and practice
	Separate subjects	Integration between subjects
	Disciplined based	Thematic
	Individual teachers	Teams of teachers
Evaluative	Traditional pedagogy	Emerging pedagogy for the information society

Tinio (2002) describes each of the pedagogic aspects in terms of implications for ICT use as follow:

Active Learning: ICT –enhanced learning mobilizes tools for examination, calculation and analysis of information in order to provide a platform for student inquiry, analysis and construction of new information. The learners therefore, learn as they do and, whenever appropriate work on real-life problems in-depth. Moreover, ICT makes the learning less abstract and more relevant to their life situations. In contrast to memorization-based learning, that is the feature of traditional pedagogy; ICT-enhanced learning promotes increased learner engagement. ICT –enhanced learning can also be 'just-in-time' learning that the learners choose what to learn when they need.

Role of teacher: Facilitator for learners.

Collaborative Learning: ICT –supported learning encourages interaction and cooperation among students, teachers, and experts regardless of where they are. Apart from modeling real

world interactions, ICT- supported learning provides opportunity to work with students from different cultures, thereby helping to enhance learners teaming and communication skills as well as their global awareness. It models learning done throughout the learner's lifetime by expanding the learning pace to include not just peers but also mentors and experts from different fields.

Role of teacher: Co-worker with learners as well as other fellow-teachers to create a congenial learning atmosphere for the learners.

Creative Learning: ICT-supported learning promotes the manipulation of existing information and the creation of real world products rather than the duplication of received information.

Role of teacher: Creator/ Producer of new teaching-learning material to motivate the learners for new learning content.

Integrative Learning: ICT- enhanced learning promotes a thematic integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice, which characterizes the traditional approach.

Role of teacher: Integrating the theory and practice for better output and enhancement of practical skills of the learners.

Evaluative Learning: ICT-enhanced learning is student-directed and diagnostic. Unlike static, text or print-based education, ICT-enhanced learning recognizes the presence of different learning pathways to explore and discover rather than merely listen and remember.

Role of teacher: Exploring and discovering the new and latest pedagogical and evaluative strategies.

A thorough analysis of this model reflects one thing in obvious way that the role of a teacher in ICTs integrated class rooms has been undergoing a drastic shift and posed so many challenges and demands upon today's teachers.

ICT INTEGRATED CLASS-ROOMS AND ROLE OF TEACHERS

Now the question is: whose role is considered the most crucial and important to capacitate the youth with all those skills which are necessary for them to adjust and adapt the changes. In the answer of this question Jessel (2012) suggested that "Innovation arising from new technologies makes a variety of demands upon the role of teacher". He continues, "At another level the introduction of innovation makes major demands upon teachers' pedagogical, professional and managerial skills."

In light of above discussion the teacher is responsible and accountable towards their learners. In traditional classrooms his role is very simple. He was at the centre and in active mode. But in this digitalized society there is a great shift in his role. Now his role is becoming so complex in nature. They are expected to become technologically oriented. Some important roles of 21st century teachers can be counted as below:

1. As a facilitator he must help his learners to develop the positive attitudes towards the changes that are taking place in their environs and also make them ready to adjust and adapt these changes.
2. As a knowledge provider his learners must be exposed to unending process of knowledge and make them capable to choose b/w the right and wrong at the same time.
3. As a guide he must enable his learners to get acquainted with new ICT based digital knowledge and advancements.
4. As a trainer his learners must be trained and mastered upon the new technological tools or instruments and make them ready to utilize all these at the maximum.
5. As a capacity builder his learners must be capacitated with all those practicum and life skills that are necessary for living a happy life.
6. As a keen observer his learners must be observed for their activities during the exposition of new and vast world knowledge.
7. As a learner he must update his knowledge to keep pace with global knowledge.
8. As a team member he must work by taking the help of his fellow teachers.

Today teachers are required to be facilitators helping their learners to make judgments about the quality and validity of new sources and knowledge, be open-minded and critical independent professionals, be active co-operators, collaborators, and mediators between learners and what they need to know, and providers to scaffold understanding. (Weinberger, Fischer andMandl, 2002).

Now the world has become more complicated, competitive and intertwined. In order to face all these complications, the individuals must be equipped to survive and thrive in the era of globalization and digitalization. Our conventional type of teaching is not enough and able to educate the individuals in accordance to 21st century. However, the beliefs and practices of teaching have to transform from old-way thinking to new ways and approaches of teaching. According to Amin (2016), "With a simple click to access countless information and resources, the role of teachers as authoritative single provider of knowledge and skills has been challenged by readily available information technology."

This easily accessibility of e-resources of information and knowledge has questioned the role of teachers in coming future. However, the arguable question is not if teachers will be replaced but what role they should play in helping themselves and their learners. The Digitalized society has developed a variety of roles and responsibilities for the teachers. Now their job is not only to feed their learners with factual knowledge and information but also enable and equip them with all those capacities and capabilities which are imperative to connect with the global society. Lu J, Lu C, Yu CS & Yao JE(2014) pointed out the teachers role as, " While Information and Communication Technology (ICT) and other digital technologies in some higher institutions of learning has yielded positive results, the birth of interactive learning has called into question the acceptance of such teaching tools and the new roles that teachers have to play."

Undoubtedly, in the present era of digitalization, the world societies uploaded the teachers with a responsibility to shape the generations for sustainable development of the nations. Lentell (2003) outlined the roles of teaches as, " Academics have to be knowledge experts, effective listeners and communicators as well as coaches, facilitators, mentors, problem solvers, designers, supporters and resource co-ordinators." A teacher have to know where to find relevant information, how to solve problems and what to keep up learning.

Like other countries, the teachers working in Indian educational system must have to play the role of efficient managers of the digital tools and equipments for the effective teaching-learning process. They should be masters of the Virtual Laboratories, e-learning resources from National Programme on Technology Enhanced Learning (NPTEL) and National Mission on Education through Information and Communication Technology (NME-ICT), open educational resources, mobile education etc.

ICT INTEGRATED CLASS-ROOMS AND ADVANTAGES

Theuse of ICT is changing teaching-learning process in several ways. Presently our class rooms are not simply designed to feed the brains of the students, these are designed and equipped with higher level technology. It is generally believed that ICTs can empower the teachers as well as the learners to contribute their best in sustainable development of the nations. Its effective use can bring efficiency in teaching-learning process and also make excellent contributions towards the achievement of educational targets.

Amin (2016) has enlisted some basic effects of digitalized environment on the teaching-learning process as follows:

1. Has an improving effect in terms of quality of student work and practical examples through visualization;
2. Improves poor handwriting and languages skills through word processing;
3. Facilitates self-pacing with increased capacities to deal with individual learning styles as students can work at the pace and intensity suitable to their needs;
4. Enables collaborative learning with little indication of the isolated learner;
5. Encourages use of peer coaching and peer reviews;
6. Develops communication skills and awareness of different audiences;
7. Has impact on resource–based learning and access to real world information through the Web;
8. Enhances information consistency and accuracy adding to authenticity of learning tasks, with pragmatic and advanced information;
9. Augments learner motivation through practical activity, visual demonstrations and improved modes of presentation;
10. Promotes independent learning and individual preferences for process, outline, method and design;
11. Furnishes learners more control;
12. Lets learners to produce high quality multimedia products;
13. Transforms teacher practices, planning tools and assessment rubrics;
14. Boosts opportunities for classes to advance and for learner experiences to shape results;
15. Can inspire students to be committed to learning and to contribute in learning activities;
16. Can develop students' higher-order thinking: their ability to apply knowledge and skills to analyze challenging problems, grasp broader concepts, and devise new ideas and solutions.

LIMITATIONS OF ICTs USE IN TEACHING-LEARNING PROCESS

Besides too many advantages of ICTs use in enhancing the quality of teaching- learning process, it also has so many limitations which, in turn play a role of barriers in way of ICTs implementation. Some of the challenging barriers are as follows:

From Learner's Stand Point:

1. Over- reliance on ICT limits students critical thinking and analytical skills
2. Learners often have only a superficial understanding of the information they download
3. Computer-based learning has negative physical side-effects such as poor vision and stiffness problems

4. Learners may be easily distracted from their learning and may explore unwanted sites
5. Learners tend to explore internet for its easy access and neglect the other useful learning resources
6. Learners tend to use copy-pasting techniques rather than using their creative powers
7. Learners feel pleasure in typing and printing and may have less opportunity to use oral and written skills
8. Weak students may get difficulty with use of ICTs because they may have problems with working independently and may need more support from their teachers

From Teacher's Stand Point

Although teachers' attitude towards use of ICTs is vital, many observations revealed the fact that teachers do not have clarity about how far the use of various ICT techniques can be beneficial to facilitate and enhancement of learning. Some of the basic problems related to teacher' attitude are as follow:

1. Negative attitude of teachers towards the use of ICTs
2. Reluctance and hesitation to use the ICTs in class-rooms
3. Lack of proper technological skills in use of ICTs
4. Lack of self efficacy and enthusiasm among teachers
5. Lack of professional training in field of ICTs implementation in education.
6. Having poor critical and scientific temper

Technology related Limitations

The other limitation of ICT use in education is technology related. The high cost of the technology and its maintenance, high cost of spare parts, high cost of anti-virus packages, interruptions of internet connections, slow speed of internet connections, and poor power supply are some of basic technology related limitations in the way of implementation of ICTs.

CONCLUSION

In short,Information and Communication Technology (ICT) have profoundly influenced today's life in every walk. After the emergence of ICT the whole world has become a global village where all activities related to human and material resources are utilized for optimum result. Now it is the responsibility of our teachers to rethink upon their traditional roles and to devise the suitable modes of instruction rather than the ordinary lecture method. The changing phase of surroundings demands a change into the outdated roles of teachers and it is too must to keep pace with the digital era if they want to live an idea of survival of fittest.

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