ROLE OF ICT IN TEACHING AND LEARNING

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by

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MESSAGE

It gives me immense pleasure to learn that the Department of Computer Science and Applications is going to release a book titled "Role of ICT in Teaching and Learning".

Integration of ICT into teaching-learning process has become the need of the hour. One of the primary aims of education is to make learning an edifying experience. To achieve this objective, it has become necessary to go beyond traditional teaching and learning methods and incorporate ICT enabled education in schools and colleges. It is universally acknowledged that creativity is catalyst for change and advancement in any field. ICT has immense potential for enhancing the learning experience by positively aiding the traditional pedagogical methods. It can become a powerful tool for transforming instructional techniques to promote active learning. Therefore, it is essential for the intellectuals to collaborate to come up with innovative ideas to discourse on the emerging trends in ICT enabled education, challenges in its way and the ways to overcome them.

I hope the views in this books will provide academicians and intellectuals with useful insights into the potential benefits of ICT for teachers and learners. I compliment the Principal and faculty for this initiative.

Mrs. Hema Sharma
President
New S.D. College Managing Committee
Hoshiarpur

MESSAGE

It is a matter of great pleasure that the Department of Computer Science and Applications is going to publish an edited book titled "Role of ICT in Teaching and Learning" in recognition of the importance of ICT enabled education.

The subject chosen is quite relevant in modern scenario. We belong to a digital era. The ubiquitous presence of technology can be felt in every aspect of our life. Information and communication technology can significantly help in providing dynamic and proactive teaching-learning environment. Integration of ICT into instructional process is becoming all the more desirable with a shift in perspective of tech-savvy generation. It will also encourage educators to effectively learn and make use of technology to harness its potential in making learning an engrossing and gainful experience.

I express my gratitude to Mrs. Hema Sharma, Honourable President and Shri Shri Gopal, Secretary and other distinguished members of college managing committee for lending support at every step.

I congratulate the Department of Computer Science and Applications for choosing a pertinent topic for publishing. The views published in this book will surely shed light on the scope of ICT in developing effective pedagogical methods to enhance the quality of education. I extend my greetings for the successful publication of book.

Dr. Nand Kishor
Principal
Sanatan Dharma College
Hoshiarpur

PREFACE

"You never change things by fighting the existing reality. To change something build a new model that makes existing model obsolete" — (Buckminster Fuller)

Information and Communication Technology (ICT) has become a major change agent to modern educational system and has undoubtedly affected the teaching and learningprocess. ICT has the potential to accelerate, enrich and sharpen skills to motivate and engage students. It can help learners to relate their learning to work practices. This book is designed to highlight the role of ICT in quality enhancement specifically in the field of education.

In conventional teaching methods, there used to be more emphasis on contents and a systematised planning to achieve desired outcome. However, it often failed to entirely succeed in instilling critical thinking in learners. The use of ICT promotes independent learning and also takes into consideration alternative theories of learning. With the help of technologies, transformations are facilitated from teacher-centric to student-centric instructions.

Active learning, Collaborative learning, Cooperative learning, Creative Learning and Evaluative learning are the various types of learning that have been promoted through the use of ICT. E, M & U learning have raised the level of education and has tremendously affected the methodology adopted for acquisition and absorption of knowledge. Although ICT has been a boon for teaching-learning process yet it is not without limitations. Besides economic and social challenges, the major issue is to use ICT in such a manner that it helps in retaining environment sustainability.

The vision behind this book is to highlight the importance of ICT in teaching and learning and also to introduce new techniques being followed in contemporary world to enhance quality of education.

We extend a special thanks to Ms. Isha, Mr. Keshav, Ms. Neena, Ms. Neha Nahar and Ms. Amandeep Kaur for their co-operation and helping in reviewing the manuscripts.

Editorial Board:

Dr. Nand Kishor (Chief Editor)
Ms. Nisha Arora (Editor)
Ms. Pooja (Co-Editor)

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E-LEARNING IN HIGHER EDUCATION

Mr. Puneet Kumar & Dr. Nand Kishor***

The nature of e-learning in Higher Education with respect to the introduction and growth of e-learning. While the ostensible aim is to use e-learning to improve the quality of the learning experience for students, the drivers of change are numerous, and learning quality ranks poorly in relation to most of them. Those of us working to improve student learning, and seeking to exploit e-learning to do so, have to ride each new wave of technological innovation in an attempt to divert it from its more natural course of techno-hype, and drive it towards the quality agenda. We have to build the means for e-learning to evolve and mature as part of the educational change process, so that it achieves its promise of an improved system of higher education.

WHY IS E-LEARNING IMPORTANT FOR HIGHER EDUCATION?

A student who is learning in a way that uses information and communication technologies (ICTs) is using e-learning. These interactive technologies support many different types of capability like:

internet access to digital versions of materials unavailable locally
internet access to search, and transactional services
interactive diagnostic or adaptive tutorials
interactive educational games
remote control access to local physical devices
personalised information and guidance for learning support
simulations or models of scientific systems
communications tools for collaboration with other students and teachers
tools for creativity and design
virtual reality environments for development and manipulation
data analysis, modelling or organisation tools and applications
electronic devices to assist disabled learners

For each of these, there is a learning application that could be exploited within Higher Education. Each one encompasses a wide range of different types of interaction – internet access to services, for example, includes news services, blogs, online auctions, self-testing sites, etc. Moreover, the list above could be extended further by considering combinations of applications. Imagine, for example,

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a remotely controlled observatory webcam embedded in an online conference environment for astronomy students; or a computer-aided design device embedded in a role-play environment for students of urban planning.

The range and scale of possible applications of new technologies in Higher Education is almost beyond imagining because, while we try to cope with what is possible now, another technological application is becoming available that will extend those possibilities even further. Everything in this chapter will need updating again when 3G and 4G mobile phones begin to have an impact on our behaviour. Never mind; we keep the focus on principles and try to maintain our equanimity in the face of these potentially seismic changes.

E-learning is defined for our purpose here as the use of any of the new technologies or applications in the service of learning or learner support. It is important because e-learning can make a significant difference: to how learners learn, how quickly they master a skill, how easy it is to study; and, equally important, how much they enjoy learning. Such a complex set of technologies will make different kinds of impact on the experience of learning:

cultural – students are comfortable with e-learning methods, as they are similar to the forms of information search and communications methods they use in other parts of their lives

intellectual – interactive technology offers a new mode of engagement with ideas via both material and social interactivity online

social - the reduction in social difference afforded by online networking fits with the idea that students should take greater responsibility for their own learning

practical – e-learning offers the ability to manage quality at scale, and share resources across networks; its greater flexibility of provision in time and place makes it good for widening participation

There is also a financial impact. Networks and access to online materials offer an alternative to place-based education which reduces the requirement for expensive buildings, and the costs of delivery of distance learning materials. However, learners still need people support, so the expected financial gains are usually overwhelmed by the investment costs of a new system and the cost of learning how to do it. We cannot yet build the case for e-learning on cost reduction arguments – we are better placed to argue for investment to improve value than to save costs.

CHANGING HIGHER EDUCATION TOWARDS THE USE OF E-LEARNING

E-learning could be a highly disruptive technology for education - if we allow it to be. We should do, because it serves the very paradigm shift that educators have been arguing for throughout the last century. Whatever their original discipline, the most eminent writers on learning have emphasised the importance of active learning. The choice of language may vary by

Dewey's inquiry-based education,
Piaget's constructivism,
Vygotsky's social constructivism,
Bruner's discovery learning,
Pask's conversation theory,
Schank's problem-based learning,
Marton's deep learning,
Lave's socio-cultural learning

but the shared essence is the recognition that learning concerns what the *learner is doing*, rather

than what the teacher is doing, and the promotion of active learning in a social context should be the focus of our design of the teaching-learning process. It is especially the social situations of learning, in the Vygotskyan tradition, that is the focus of David McConnell's chapter in this book.

If the organisation of teaching and learning in Higher Education were driven by the insights of these scholars, then e-learning would have been embraced rapidly as the means to deliver active learning. But change in Higher Education requires a subtler understanding of the forces at work, and here Lewis Elton is a valuable guide.

A top down management structure is inimical to successful innovation precisely because management does not have the knowledge necessary. A similar point is made in a collection of articles in a recent Demos publication on the process of reform in the public services in general. Here the 'mechanistic state' is contrasted with the 'adaptive state' Demos, 2004. Again, the point is made that if we try to innovate through command and control methods, the innovative idea weakens as it travels down the hierarchy and confronts the local system knowledge it is failing to use in its process of reform. In an adaptive, or cybernetic structure, the model is not a unidirectional graph, but a network, with multiple two-way links between all nodes, even if there is a hierarchical organisational structure. These local dialogues allow localised versions of the innovation to spread downwards, customised versions to spread sideways to peer groups, and generalised versions to travel upwards to managers and leaders.

We need systems capable of continuously reconfiguring themselves to create new sources of public value. This means interactively linking the different layer and functions of governance, not searching for a static blueprint that predefines their relative weight. Bentley and Wilsdon, 2003

Another source for this kind of analysis is the literature on knowledge management, which draws our attention to the importance of continual innovation, if an organisation is to remain competitive. Senge's 1993 analysis derives from a systems approach, and concludes that the organisation must be 'continually expanding its capacity to create its future ... "adaptive learning" must be joined by "generative learning" - learning that enhances our capacity to create'. The quote captures the twin tasks of both generating new knowledge, and monitoring existing activities, to ensure adaptive change in response to the external environment. Similarly, Nonaka made the link between knowledge creation and competition in his seminal paper on organisational knowledge, and his model draws attention to the relationship between individual learning and organisational learning (Nonaka 1994). Organisational knowledge creation is seen as a continual dynamic process of conversion between tacit (experiential) and explicit (articulated) knowledge, iterating between the different levels of the individual, the group and the organisation. Again, the network, rather than the directed graph, is the optimal model for innovation, and the dialogic process between individuals and groups at different levels of description of the organisation, is very similar to the principles embodied within the Conversational Framework for learning Laurillard, 2002.

In the context of research, academics measure up well to the idea of 'the reflective practitioner' (Schön, 1983) working within a 'community of practice' (Wenger, 1999). The progress of innovation is rapid and effective.

All academics, therefore, need to cover the full range of professional skills of both research and teaching. They will differ in proportion, of course, but there is no easy exit from the responsibility of every university to offer its students access to expert teaching informed by current research, to give them the capabilities they need for their own professional lives.

University teaching must aspire to a realignment of research and teaching and to teaching methods that support students in the generic skills of scholarship, not the mere acquisition of knowledge. Forward to the past: universities have to manage on the large scale the same values, aspirations and modus operandi they used for a privileged elite.

We might expect to conclude, from the previous discussion, that the most productive form of system redesign for innovation in pedagogic style in Higher Education would be to return to the undirected collegial networks of earlier decades, before top-down management took hold. The technology itself serves that shift because it creates the means by which multiple networks can co-exist, inter-operate, and self-generate. But technology does not yet adapt to major change in a seamless, incremental way. The technological changes we exploit on the grand scale demand giant upheavals in the physical and organisational infrastructure. The motorcar prompted incremental changes from lanes and carriageways to tarmac roads, but it also demanded the complex centralised infrastructure of motorways and licensing laws. ICT is making many incremental changes to local ways of working, but it also requires the pooling of resources to create shared networks, and agreed technical standards to enable those networks to interoperate. These changes do not happen without planning and coordination. The change towards e-learning creates the peculiar challenge that it needs both the network-style 'cybernetic systems' approach to innovation, and the top-down, 'command and control' approach to shared infrastructure and standardisation.

We could position e-learning, therefore, as the means by which universities and academics manage the difficult trick of making the learner's interaction with the academic feel like a personalised learning experience, focused on their needs and aspirations, developing their skills and knowledge to the high level universities always aspired to, while doing this on the large scale. E-learning enables academics and students to communicate through networks of communities of practice in the cybernetic approach that makes change and innovation an inherent property of the system. At the same time, we need a way of creating the common infrastructure of agreed standards of interoperability that enable, and do not frustrate innovation.

TECHNOLOGICAL CHANGE AND THE LEARNING EXPERIENCE

The information revolution is sometimes compared with the Gutenberg revolution, when the printing press harnessed a mass delivery system to the medium of the written word. It is a good parallel to draw for the impact of the Internet, but it undervalues the other key feature of the interactive computer - its ability to adapt. The simple fact that it can adapt its behaviour according to a person's input means that we can engage with knowledge through this medium in a radically different way.

A better analogy than the printing press, to give a sense of the power of this revolution, is the invention of writing. When our society had to represent its accumulated wisdom through oral communication alone, the process of accretion of communal knowledge was necessarily slow. Writing gave us the means to record our knowledge, reflect on it, re-articulate it, and hence critique it. The means by which the individual was able to engage with the ideas of the society became radically different as we developed a written culture. When a text is available in written form, it becomes easier to cope with more information, to compare one part with another, to re-read, re-analyse, reorganise and retrieve. All these aspects of 'knowledge management' became feasible in a way that had not been possible when knowledge could only be remembered. The earliest surviving text -

the Rosetta Stone - shows that 'information management' was an important benefit of the medium, recording the resources available, allowing a tally to be kept, enabling better management of the way the society operated.

A spreadsheet holds a different kind of working model. It holds not just data but also ways of calculating with the data to represent different behaviours of a system. A common application is for modelling cash flow for a business. The user can determine the initial data about costs and pricing, for example, and the spreadsheet calculates the profit. By changing the prices, the user can experiment with the effects on profits. The cash flow model embodies an assumption about the effect of prices on sales - for example, that they will fall if the price goes above a certain limit. But the user can also change that assumption, by changing the formulae the spreadsheet uses for calculating profits. So there are two ways in which the user can engage with this model of the cash flow system: by changing the inputs to the model, and by changing the model. The adaptive nature of the medium offers a creative environment in which the user can inspect, critique, re-version, customise, re-create, design, create, and articulate a model of the world, wholly different from the kind of model that can be created through the written word.

These two examples illustrate the power of the interactive computer to do a lot more than simply provide access to information. It makes the processing of that information possible, so that the interaction becomes a knowledge-building exercise. Yet the excitement about information technology has been focused much more on the *access* than on the *processing* it offers. And the technology developments so far have reflected that. The focus has been on the presentation of information to the user, not on tools for the user to manipulate information.

The closest we have come to the equivalent of pens and pencils, the tools that enabled all of us to contribute to the written medium, is authoring tools such as '*Hypercard*', which allowed the user to create their own associations between texts and diagrams in the form of hyperlinks, thereby building their own information environment with no knowledge of programming necessary. It was meant to open up the world of personal computing to non-programmers. Sadly it failed, because almost immediately the Web arrived, and with it the world of web pages and browsers. It was another historical accident of technology development that was immensely successful at extending even further the salience of the written medium, but gave no opportunity for us to explore how we might ourselves engage as contributors within the new interactive medium.

E-LEARNING IN UNIVERSITY TEACHING

E-learning has been used very effectively in university teaching for enhancing the traditional forms of teaching and administration. Students on many courses in many universities now find they have web access to the lecture notes and selected digital resources in support of their study, they have personalised web environments in which they can join discussion forums with their class or group, and this new kind of access gives them much greater flexibility of study. Part time students can more easily access the course and this in turn supports the objectives of wider participation, removing the traditional barriers to Higher education.

E-learning could do more. The interactive computer could be used to give students an alternative to writing as a form of active participation in knowledge-building. It can model real-world systems and transactions, and can therefore create an environment in which learners can explore, manipulate, and experiment. The features of the digital environment are fully controlled by the program so that

it can be designed to offer as much or as little freedom to the learner as is appropriate to their level of mastery. A simple example is a mathematical model of a well-researched system, such as population dynamics in biology, or unemployment fluctuations in economics. An interactive simulation enables students to explore how the model behaves according to the way they change parameters. The teacher can set challenging problems, such as finding the combination of changes in inflation and exchange rate that produces a sudden rise in unemployment. Students can inspect and experiment, build and test hypotheses, and generate a rich sense of how this model behaves, i.e. how this economic theory works. The teacher could extend this further, as they become more knowledgeable, by noting that the model fails to account for a recent set of data, for example, and offer a variation in the model which students must then further investigate and interpret in real-world terms. The nature of the intellectual activities they practise through this interactive medium is importantly different from the process of reading, critiquing, interpreting and articulating that is typical of their work in the written medium. It does not replace it, but it certainly increases their capability in understanding and critiquing an existing theory. Any system that can be modelled in this way, in any mathematically-based discipline, is open to interactive investigation of this kind.

There is no discipline of academic study whose students would not benefit from this kind of intimate engagement with the concepts, interpretations, and theories of their field. It does not displace their work on the written word, but it does empower their engagement with it. A learner who has experimented with ways of manipulating a Picasso collage approaches an academic discussion of cubism with a much deeper sense of how it works as visual representation, than they do when they have only read an expert's thesis. They must do both, because they must learn the much more efficient forms of articulation of an idea that the written word offers. But the written word does not answer their questions – an interactive program can answer how it would look if the guitar section were not inverted…

CONCLUSION

This argument throughout his career – from his concern with student evaluation, to the role of computer assisted learning, to the importance of staff development, to the role of institutional change, and overall, in his tireless advocacy, on the international stage, of the needs of the learner.

Education technology is illustrated perfectly when I remember the first piece of work I did for him, as a newly appointed assistant on his project *'Computers in the Undergraduate Science Curriculum'*. His idea was to give students an interactive simulation in which they could investigate the behaviour of an object in free fall with air resistance, and use this to decide the point at which a parachutist jumping under enemy fire should open his parachute in order to minimise his time in the air without crashing to the ground. We worked with a very primitive interactive graphics display to give students the opportunity to experiment with velocity-time and distance-time graphs, to see how the different types of motion, free fall and with parachute, behaved. They were then shown the real-time plot of the parachutist falling, on a distance-time graph, and had to estimate, using their knowledge of the model, when to interrupt the fall and open the parachute. I learned my first lesson of interactive design here: if the wrong answer is more interesting than the right answer, that is the one they will work to produce - the splat of a crashed parachutist, or his destruction by firing, was evidently much more rewarding than the gentle cruise safely to earth. For the educational innovator, who seriously wishes to improve the quality of education and the learning experience, it is imperative that we

create an education system that is clear about its values and sets its aims and ambitions high, and that is capable of rapid adaptation to its technological, as well as its social, cultural and political environment. The argument developed over this chapter suggests that we can do this if we exert some influence over the way in which e-learning is used in universities, and direct its power overtly towards the needs of learners. Change in universities is an aspect of their organisation, and again, the opportunities of the new learning technologies, including all their capabilities for information processing, communications, mass participation, design, and creativity, support the kind of system structure that would enable change to be organic and progressive – adaptive rather than mechanistic.

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2

THE USE OF ICT TO SUPPORT DYSLEXIC STUDENTS

Sangeeta Singh Hada & Dr.Neha Vats***

The use of ICT can increase the independence of students with dyslexia and improveaccess to the curriculum. Some dyslexic students have great difficulty in movinginformation from short-term to long-term memory which is frustrating and may behumiliating.The use of ICT can re-motivate learners, boost their self-confidence andencourage them to develop strategies to compensate for their difficulties. ICTcan enhance access to the curriculum, providing extra support in areas wheredifficulties are experienced without frequent requests for individual help andadditional support. Some dyslexics retain information more easily when more thantwo senses are involved in the learning process. The use of ICT involving visual,auditory and kinesthetic memory with sound prompts and spoken feedback islikely to be of great value to them. Providing safe and controlled environments, motivation, high level of interactivity, immediate feedback, as well as improvement of visual and memory skills, ICT support the effective learning of these individuals. Their implementations of the assessment and intervention process are significant in terms of an effective education and learning experience.

***Key-words**: ICT, Dyslexia, Dyslexic students*

INTRODUCTION

ICT can motivate students with dyslexia, to acquires pecific skills for reading, spelling andwriting as well as giving more general support in the curriculum. ICT is likely to be a useful tool towards users with dyslexia (Drigas et al., 2015; Zikl et al., 2015). It can assist and reinforce the learning process, as well as it can create a developmental appropriate learning environment depending on the needs of learnersICT offers a whole toolkit of strategies to help learners with dyslexia, from simple word processors to speech recognition, CD-ROMs and the Internet.

DYSLEXIA

According to the Dyslexia Institute, 'Dyslexia is a specific learning difficulty that hinders the learning of literacy skills. This problem withmanaging verbal codes in memory is neurologically based and tends to run in families. Other symbolicsystems, such as mathematics and musical notation, can also be affected'.

Dyslexia is one of the most common learning disabilities; it is a specific disorder that involves a severe impairment in reading ability, which affects and disrupts a person's language development

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and functioning (Blustein, 2013). It is described as a disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence, and socio-cultural opportunity. It affects relatively about 7–10% of the population across most languages and cultures (Peterson and Pennington, 2012).

Dyslexia refers to learning disability in readingthat occurs in children with normal intelligence. Some dyslexics may also have difficulties in writing and spelling. Some others may face speaking or numerical difficulties.Children with dyslexia are often seen with frustration. Learning disabilities like dyslexia are to be detected and diagnosed in childhood itself. Diagnosing learning disabilities early in childhood is of great relief for the parent, the teacher and above all the affected child.

Problems faced by the dyslexic students-

- reading
- left andright
- computation
- memory
- organization
- pronunciation, particularly of words of three or moresyllables
- sequencing
- spelling
- visualdiscrimination
- auditory discrimination

ICT

Information and communication technology usually abbreviated as ICT, is often used as an extended synonym for information technology (IT), but is usually a moregeneral term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage- and audio visual systems, which enable users to create, access, store, transmit, and manipulate information. In other words, ICT consists of IT as well as telecommunication, broadcast media, all types of audio and video processing and transmission and network based control and monitoring functions.

The term Information and Communication Technology (ICT) refers to computers and associated equipment such as printers, software, the internet and World Wide Web, video conferencing, personal digital assistants and so on. The main purpose of ICT in education means implementing of ICT equipment and tools in teaching (school level as well as higher study level) and learning process as a media and methodology. The purpose of ICT in education is generally to familiarize students with the use and workings of computers, and related social and ethical issues.

ICT can help students with Dyslexia by-

1. Facilitate individual instruction and learning
2. Support literacy and numeracy
3. Motivate students
4. Enable students to participate more fully in an inclusive environment
5. Provides multisensoryfeedback
6. Easy to develop strategies to provide individual supporttools
7. Facilitates a more independent way ofworking

8. Raises confidence, self-esteem and improves attitude andbehavior
9. Provide multi-sensory teaching and the opportunity for multisensory practice
10. Provide an accurate record of results if needed
11. Provide an active learning environment so often needed by such students
12. Provide opportunities for remediation where necessary, at the students' level

Using ICT to support students with Dyslexia: ICT can be a valuable tool to support students with special needs including those with dyslexia. Students with dyslexia can benefit from the visual and auditory nature of ICT. It can be used to develop skills and reinforce learning in a meaningful and non-threatening manner. ICT can also be used as a personal support tool to empower pupils to achieve greater independence and allow for greater participation in a mainstream environment.

ICT can help dyslexic students in education, at work and at home by helping address many difficulties associated with them.Teachers can identify dyslexic students and enable early intervention by using one or more of the assessment programs or tools.

A range of software now exists to help learners to organize their thoughts, develop their memory skills, expand their creative writing and produce work which reflects their ability and make them able to overcome barriers to learning,work independently and demonstrate their true ability. But, as with other strategies, software needs to be chosen with care.

1. Multisensory Instructional Approach: A multi-sensory approach, "also known as VAKT (visual-auditory-kinesthetic-tactile) implies that students learn best when information is presented in different modalities. The belief is that students learn a new concept best when it is taught using the four modalities. A multi-sensory approach is one that integrates sensory activities. The students see, hear, and touch. The use of Multi Sensory Strategy (MSS) makes learning more permanent. Students with dyslexia can learn best when instruction incorporates some combination of visual, auditory, kinesthetic and tactile (VAKT) input as well as many opportunities to practice. If dyslexic learners are to make progress they must have a multisensory approach, where they look, listen and touch. The computer is an excellent way of providing word finding and spelling activities. With the use of pictures and the addition of high quality speech, the learner is provided with a multi-sensory approach.

2. Support for Reading: There are many programs and technologies to support reading of dyslexic students-

(a) Talking books: More recently there have been many texts of fiction and text books made available in electronic format to use with a variety of Text to Speech tools. Most have in built digital recordings but some can be used with Microsoft Speech. Talking books allow dyslexic students to read text in a supported environment and at a pace that suits their needs. Talking books and texts will usually highlight the text as it is being spoken, in words or phrases.

(b) Screen settings: Screen settings such as colored backgrounds and changing the size, font and color of the text can be modified on a personal computer to suit the user.

(c) Virtual overlays: Some children with dyslexia find that the glare of text on a white background causes visual stress. This can make it uncomfortable to read and can in some cases distort the text or cause it to move. In some cases, colored overlays can help with this. Virtual overlays in a range of colors can be used on a computer or other device to reduce this problem.

(d) 'Text to Speech' Software: This can be used to create a spoken sound version of the text in a computer document such as a Word file. This allows you to hear the text you looking at.

3. Support for writing: Many students with dyslexia find that they have problems with the mechanics of writing which can make them slow and reluctant writers. The effort required will often distract them from thinking about the content of the work and final checking will be harder if their writing is hard to read. Some children find that when using a keyboard and screen they can devote more attention to the content and spelling of their writing. They also find it much easier and less depressing to read and correct their work on the screen.

Some supportive programs and technologies are-

(a) 'Speech Recognition' Software - sometimes called voice-to-text, this converts spoken words to written text. This allows you to talk to the computer and your words appear in the correct spelling on the screen so you don't have to physically type.

(b) Smart pens - a Smart Pen is a writing tool that records spoken words and synchronizes them with notes users write on special paper. This could be used, for example by a student to record a lecture and replay any part of it later by tapping the pen on words written throughout the class. Information recorded can be transferred to a computer.

(c) Word-Processors- Word-processing programs have made a huge difference to many dyslexic students by supporting writing demand and the examination system. If the dyslexic students can type longer pieces of work or essays it removes the pressure of having to rewrite work many times over to get an eat piece of writing.

(d) Text Reading Features- Most computers now have a text reading facility and some word-processors now have this built-in. These may be adjustable and allow students to hear the words and or sentences as they are being typed or read only at the end of a sentence.

(e) Touch Typing-for some people, being able to touch type can be very helpful as it frees the brain to focus on the content of what is being written rather than the actual process of writing text.

(f) Spellcheckers in Word-processors- Spellcheckers in word processors can help identity misspellings or typing errors. Using 'Autocorrect' can help with correcting commonly miss-typed words.

Word processing and editing features eliminate much of the stress of writing for dyslexic students by:

a. Removing illegibility caused by poor handwriting and/or presentation of written work
b. Eliminating many spelling errors
c. Helping with the organization and sequencing of ideas
d. Enabling easy drafting and editing
e. Making proof reading easier

4. Support for Mathematics: Mathematical work presents particular problems to dyslexic pupils. 'Seeing' and 'doing' are the watchwords for teaching mathematics to dyslexic learners, without many verbal explanations. This helps to reduce other possible problems with memory and sequencing. A calculator can prove a useful aid, not just to getting an individual answer right but also for learning particular products or number bonds. A calculator can encourage the estimation of answers, and a product such as the Interactive Calculatorfrom Inclusive Technology, which has

auditory feedback, physical manipulation, and a 'guess' button, can be particularly helpful. Spreadsheets can help students with the recording of their work, giving good layout examples.

5. Apps for dyslexia: There are a variety of free and low cost Apps students can download to help with reading, writing, numbers and organization.

CONCLUSION

ICT programs can be valuable tool to support students with dyslexia. Students with dyslexia can benefit from the multisensory approach of ICT. Schools should develop these programs, so the students can take full advantage of the power of ICT to overcome barriers to learning, work independently and demonstrate their trueability. Moreover, ICT can provide support not only to the individuals with dyslexia but also their families and educators by increasing their knowledge and understanding of the numerous challenges those individuals face in their everyday life.

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3

GREEN ICT IN HIGHER EDUCATION INSTITUTIONS

*Nisha Arora**

Green ICT is an innovative way of utilizing ICT equipmentsin such a manner that environment protection and sustainability goals are achieved. This paper reviews the practices of Green ICT in educational institutions, discusses the benefits of adopting green computing in educational institutions and also the barriers in the Green ICT .The study identified that the Green ICT is essential for institutions for cost effectiveness and environment sustainability.

Keywords: *Green ICT; ICT Sustainability; Green ICT Practices.*

INTRODUCTION

Green ICT, or ICT sustainability is the study and practice of environmentally sustainable computing.Now a days Green technology and sustainability are the most widespread concerns.Tremendous climate change in recent years is one of the obvious pointers that the earth is getting harmed. It is very much necessary to save the environment and ultimately the world. In spite of the benefits that ICTs provide, they also create environmental problems, consuming incredible amounts of electricity and creating carbon dioxide emissions. By adopting Green ICT, TCT infrastructure will be deployed in an energy-efficient manner, services will be delivered digitally and this will reduce our carbon footprint and ICT operations should minimize their effect on the environment both in terms of energy usage and emissions now a day's higher education institutions and universities are under high pressure to adopt more sustainable approaches to ICT use. This force has initiated from government, from stakeholders and general society. Over the years, there has been a significant increase in number of colleges and students enrolled in Higher Education across the nation, with more than a hundred colleges and institutes affiliated to some universities. With the increase in the number of institutionoffering higher education, green ICT practices at institution has ended up key factor to attain cost effective results and corporate social obligation. Hence green ICT implementation at institute has developed as key factor to attain the cost effective solutions and sustenance of ICT.Green ICT has been a dynamic research area which ponders a productive utilizationof IT equipment's. It is basic need to teach all stakeholders of education institutions to think green for sustenance of ICT, society and globe. The green ICT practices are lessening greenhouse gas emanations however by keeping utilization of ICT as it is in our everyday life.

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LITERATURE REVIEW

The education institutions are alerting as well as instructing and preparing the society to tackle environmental issues and to adopt environmental sound practices in their approach of using ICT. UNESCO aims 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 [2]. India actively promotes the use of information and communication technologies in education sector. Higher education in India has witnessed an impressive growth over the years. The number of higher educational institutions (HEIs) has increased from about 30 universities and 695 colleges in 1950-51 to about 993 universities and 39931 colleges as per a recent University Grant Commission report[3]. Concerning higher education institutions, the learners and academicians have extended the use of ICT as a part of their consistent life. Each individual should come to be Green pioneer for social change and saving mankind from natural defilement. Green ICT helps education organizations to realize social profits like enhanced image, higher reputation and trustworthiness among all stakeholders[4]. Educational organizations have to embrace Green ICT in order to minimize energy utilization, carbon footprint, ICT waste, to boost recycling & reuse and to diminish energy cost, besides environment could be realize by minimizing the wastage of computational facility [5].

HOW CAN EDUCATIONAL INSTITUTIONS CONTRIBUTE TO GREEN ICT?

The researchers have investigated the ways in which educational institutes can reduce, reuse and recycle infrastructure. The green ICT practices followed by education institutions to achieve cost effective solution along with green reasoning are as follows:

1) E-Waste disposal: This practice reduces carbon footprint through proper disposal of hardware and its hazardous components. The institution should ensuse 100% recyclability and safe disposal of institution e-waste, through a responsible recycler

2) Reduction in paper work: This practice ensures the reduction of consumption of paper, ink, toner, energy, and hazardous material from printer devices and cartridges. Most of the institutes are following the practices of online communication rather than printed hard copies and printing only when it is necessary. The students are encouraged for digital submission of their subject's assignments and lab journals. To have paperless institute is becoming the goal of institutions.

3) Usage of Energy Efficient ICT Equipments: This practice reduces the consumption of energy during extended idle times, overnights, etc. The personal computing power management was monitored by following various practices like switch off modems, PCs, Router, Wi-Fi Access points when not in used or overnight, remove active screensaver, use of TFT's LCD (Thin-film-transistor liquid-crystal display) instead of CRT Monitors, use of next generation processors which are energy efficient etc. The most of the institute has organized awareness programme for faculty and students for efficient and effective use of electric energy in institutions which lead to reduction of power bill.

4) Green ICT Committee Formation: To begin Green-ICT initiatives among all stakeholders like student, faculties, staff members etc the institution should frameGreen ICT committee which is responsible for sustainable ICT practices and motivation for all stakeholders to go green in their approach. Also participate in activities coordinated by government and advocate for Green-ICT schemes to the government. This committee is responsible for organizing workshops and sessions

to raise all stakeholders as well as society awareness about Green ICT.

5) Use of Thin Client Model and Cloud Computing: This practice reduces ICT infrastructure cost and hardware footprint. Cloud computing decreases the effort required at the education institutions for setting up computer lab, updatingand maintaining hardware and software. It also reduces software licensing costs, hardware costs and maintenance which help the institutions facing budgetary constraints from management. Moreover, minimize hazardous ICT waste.

6) Buying of Energy Certified Equipments: This practice reduces future energy consumption by setting baselines, understanding institutional energy use, working towards reduction of energy cost

7) Use of Renewable energy Sources:This practice uses renewable energy sources like solar for ICT as each day earth receives more energy from sun. Renewable energy is energy that can be refilled easily. Energy that can be produced by natural objects like water, sun, wind etc is considered to be renewable and also solar-wind power generators are clean and non-polluting. Most of institutions are implanting solar panels to achieve this green practice

BENEFITS OF USING GREEN ICT AT HIGHER EDUCATION INSTITUTIONS

1) Environment Sustainability: The ICT generates large amount of hazardous waste. E-Waste accounts for 40 percent of the lead and 75 percent of the heavy metals found in landfills which are both dangerous for human health. The institutions are reducing ICT wastes by recycling or reusing IT equipment which can extend the ICT lifecycle equipment. Therefore, by following this green practice institutions are helping in reducing carbon footprint and hazardous e-waste

2) Better Resource Utilization: Green ICT is a powerful approach to utilize resources such as computers, heat, light, electrical power etc. in an environmental friendly way.

3) Comply with Government regulation and Institute Green Policy: The institute comply with the government laws, protocols for sustainability and also its own policy by way of reducing e-waste, providing healthy environment, minimizing electrical energy usage. Being environment friendly is good for the overall geo-economic condition. There is no negative effect of adopting Green ICT practices, therefore no regrets. It saves the resource of the country as a whole. It is now high time academicians should start saving fuel sources and energy for the future generations along with saving money and assets for them.

4) Improve Image in Society: Green ICT has been an active research area which studies an efficient use of computing resources. It is imperative need to educate all stakeholders of education institutions to think green for sustenance of ICT, society and planet. The green ICT practices are reducing greenhouse gas emissions as well as potential harmful effects on the planet though by keeping use of ICT as it is in our day to day life. The education institutions are not only alerting but also educating and training the society to go green in their approach of using ICT. Hence institutions image improves in the society.

5) Reduce energy cost: Green ICT study is beneficial for reduction in environmental impact and electricity power bill which is very essential for future sustainability. By following simple practice of reducing power consumption like power-down the CPU and all peripherals during the periods of inactivity and so on, each institution reduce not only energy utilization but also energy cost and ultimately contribute towards preserving natural resources.

CHALLENGES OF IMPLEMENTING GREEN ICT IN EDUCATIONAL INSTITUTIONS

Some of the key challenges that hampers the implementation of green ICT in education institutions are;

1) Lack of technical skills or trained manpower in green ICT
2) Green implementation is costly
3) Lack of Seminars/Workshops to provide knowledge of Green ICT
4) Lack of legislation to support Green ICT implementation.
5) General Resistance to change
6) Rapid technology changes
7) Lack of Government strict Regulation
8) Inadequate Research & Development Activities

CONCLUSION

This paper examined Green ICT concepts and has provided the explanation why educational institutions need to give careful consideration to Green ICT. This paper has also discussed the green ICT practices followed by educational institution based. Regardless of the practices, the factors that most significantly determine the success of green ICT are motivation for adoption of Green ICT, urgency to comply with government environmental laws and policies, support from top management and stakeholder. This paper is a step toward adopting Green ICT practices and policies to eliminate environmental harms toward getting green environment. Following these suggested practices will lead to have Green ICT and a step towards sustainable future. This study provides guidelines for stakeholders like faculty, students who are youths of nations, staff members to enhance their work toward green ICT for achieving cost effectiveness, sustenance of ICT and corporate social responsibility.

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4

ROLE OF E-LEARNING, M-LEARNING, U-LEARNING IN TEACHING-LEARNING PROCESS

*Ms. Neena**

In the 21st century, the information and communication technology explosion increases the uses of digital devices for many purposes in the world of work and in formal and non-formal education. In present scenario E-Learning U-Learning and M-Learning is one of the important aspect of learning process which has enormous implication in the present education system. This study analyzes existing literature on the basis of the definition of the concepts, terminology used, differences, fundamental perspectives, benefits, disadvantages, and finally the similarities anddifferences of the e-learning (electronic learning), m-learning (mobile learning), and d-learning(digital learning). It reveals that e-learning and m-learning are subsets of d-learning.On theotherhand, some learning tools could be considered as m-learning as well as e-learning.

Keyword: *E-learning, M-learning & U-learning, ICT Technology*

INTRODUCTION

In 21st century, availability of computer and internet in the field of education has changed the procedures andpatterns of learning. Now learning patterns knocks at the door of students or learners. Todayanyone learns anywhere, anytime. Latest information and content is available at low cost. Newtechnological term replaced old terms such as – Banking into e-banking, Money into e-money,Commerce in to -ecommerce, Governance in to e-Governance, Education in to e-education,Learning in to e-learning. And say that today's our life change in to e-life etc. E-learning isa new sensation in the field of education.

E-learning plays an important role in the educational growth of any nation. It also offers opportunities for developing nations to enhance their educational development. It can also plays a critical role in preparing a new generation of teachers, as well as upgrading the skills of the existing teaching force to use 21st century tools and pedagogies for learning. So it is the changing trend in education.

Mobile learning combines E-learning and mobile computing. Mobile learning is sometimes considered merely an extension of E-learning, but quality M-learning can only be delivered with an awareness of the special limitations and benefits of mobile devices. Mobile learning has the benefits of mobility and its supporting platform. M-learning is a means to enhance the broader learning experience. M-learning is a powerful method for engaging learners on their own terms. E-learning

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and M-learning diagrammatically mentioned below:-

Functionality		Mobility		
Computer	Laptop computers	PDA's handhelds palmtop	Smart phones	Mobile phone
E- Learning		M-Learning		

MEANING OF E-LEARNING

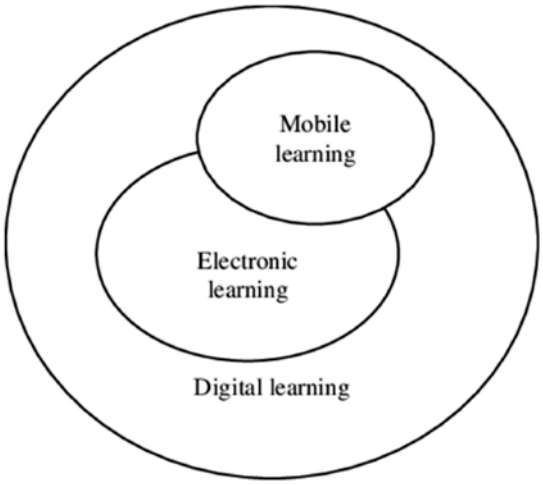
E-learning refers to a learning system that we can obtain through the internet using an electronic device. We also call it **online learning** or **online education**. The *'E'* in E-learning stands for *'Electronic.'* Hence, the original term '**electronic learning**.'

ADVANTAGES OF E-LEARNING

- Class work can be scheduled around personal and professional work, resulting in flexible learning.
- Reduces travel cost and time to and from school
- Learners may have the option to select learning materials that meets their level of knowledge and interest
- Learners can study wherever they have access to a computer and Internet
- Self-paced learning modules allow learners to work at their own pace
- Flexibility to join discussions in the bulletin board threaded discussion areas at any hour, or visit with classmates and instructors remotely in chat rooms
- Different learning styles are addressed and facilitation of learning occurs through varied activities
- Development of computer and Internet skills that are transferable to other facets of learner's lives
- Successfully completing online or computer-based courses builds self-knowledge and self-confidence and encourages students to take responsibility for their learning

DISADVANTAGES OF E-LEARNING

- Unmotivated learners or those with poor study habits may fall behind
- Lack of familiar structure and routine may take getting used to
- Students may feel isolated or miss social interaction thus the need to understanding different learning styles and individual learner needs.
- Instructor may not always be available on demand
- Slow or unreliable Internet connections can be frustrating
- Managing learning software can involve a learning curve
- Some courses such as traditional hands-on courses can be difficult to simulate



E-LEARNING PLATFORMS

People can do an online course via a wide variety of different platforms, such as:

- MOOCs (Massive Online Open Courses), e.g. Coursera or Futurelearn.
- Virtual learning environment (VLE), such as Learn or Blackboard.
- Video streaming services, such as YouTube.
- Virtual instructor-led training (VILT), e.g. WebEx or webinars.
- Discussion boards.
- Forums.
- Podcasts.

TYPE OF E-JOURNEY

There are two main types of e-learning-

(i) **e-journey:** e-journey is basically related to internet. It is tour of website your search, you explore the web for what you want. It is training. This program takes the learner through various data providing sites and allow him to select what he thinks is better for him.

(ii) **Blended learning**: Blended learning is more modern approach to words e-learning. Itincludes the use of all models of e-learning which includes internet as well as products like CD ROM.

Characteristics of e-learning: Some important characteristics of e-learning are as follows.

- Large mass covered
- Flexible learning
- More planned and organized system of learning,

Reduces students indiscipline and unrest problem

- Environment friendly and economic
- Errorfree and speedy technology
- Larger autonomy
- Effective and efficient learning
- Transparent andauthentic system of educator.

MEANING OF M-LEARNING

M-learning or 'mobile learning' is any sort of learning that takes advantages of learning opportunities offered by mobile technologies. In other words, mobile learning decreases limitation of learning location through the mobility of portable device. M-learning is convenient in the sense that it is accessible from virtually anywhere, which provides access to all the different learning materials available. M-learning also bring strong portability by replacing books and notes with portable devices. As mobile devicesbecome more and more powerful it will become easier to design effective mobile learning.M-Learning involves learning anywhere with no need to physically connect to an out let. Thus the m-learning can be summarized in a singlestatement – **"deliverance of education or any learning via any portable devices".**

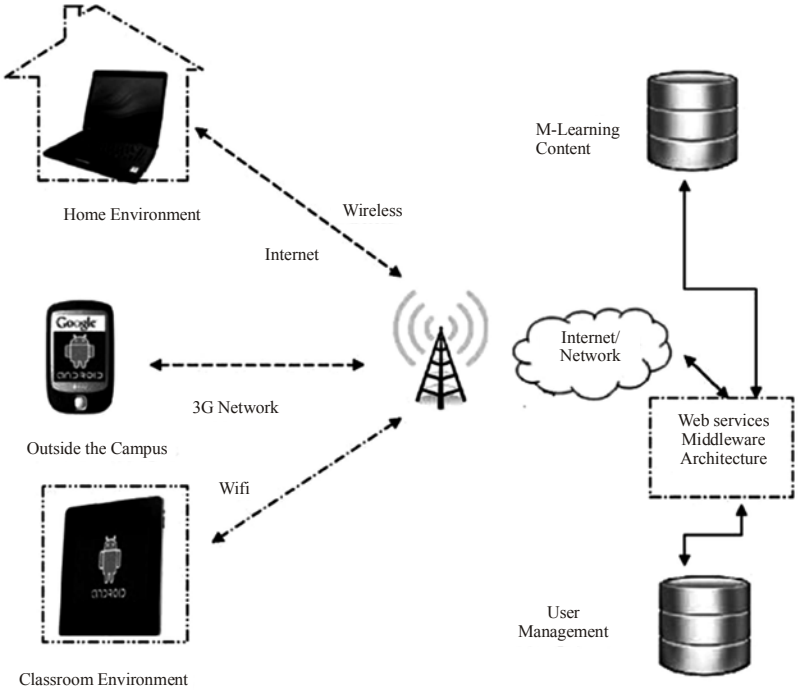


Fig 1. M-Learning Application for Ubiquitous Learning Environment

CHARACTERISTICS OF M-LEARNING

Accessibility:- The information is always available whenever the learners need to use it.

Immediacy:- The information can be retrieved immediately by the learners.

Interactivity:- The learners can interact with peers, teachers and experts efficiently and effectively through different media.

- ***Supports self-paced learning:-*** People learn at different rates, and mobile learning allows people to learn in their own way at their own individual pace.
- **Can suit multiple learning styles:-** mobile learning can be moulded to suit different learning styles increasing learner engagement. For example, text, images, video, podcast, quizzes etc. can all be flexibly incorporated into the content to suit varying learning styles.
- **Context-awareness:-** The environment can adopt to the learners real situation to provideadequate information for the learners.
- ***Motivation:-*** By using gamification methods, such as learning leader boards and other social status symbols like learning badges, mobile learning systems can actually make learning more fun and engaging.

DISADVANTAGES

- ***Small Screen:***
- At times the convenient small screen on mobile phones can be a big disadvantage, as reading documents on a small screen can lead to eye strain.
- **Prone to Distractions:**
- The hyper connected smartphone user may receive, (or even expect to receive), SMS, social media or news notifications during a mobile learning session.
- **Outpacing technology**
- Mobile learning courses can drain batteries quickly and struggle in areas of poor connectivity, leading to an unintentionally fragmented learning experience that reduces engagement.
- **Lack of standardisation:**
- Device compatibility issues may arise as there is a lack of standardisation in smart-phones. Learners may be have different: OS, versions of that OS, screen sizes, battery life and so on.

TYPES OF M-LEARNING

The main types of mobile devices for m-learning used in educationprocess are:-

(a) Note Book computers– From one hand they have such abilities as desktop personal computer,from the other hand they small sizes and support wireless communications. Their prices are stillhigh.

(b) Tablet PC– These are one of newest mobile devices. They also have full range of abilities aspersonal computers. Some of them have not keyboard but have software to recognize handwritten text. It is relatively expansive.

(c) Personal Digital Assistance (PDA) – They have small sizes and significant processor power.The main operating system used are palm and Microsoft pocket PC.

(d) Cellular Phones– The low class devices mainly can be used for voice communication andsending and receiving of text message (sms). Some of their disadvantages are low memorycapacity and low data transfer rate. Cellular phones can be higher class can be used to internetaccess via WAP or GPRS technologies. Their price continuously decreases.

(e) Smart Phones- They are hybrid devices which combine the abilities of cellular phones andPDA. They have smaller sizes than PDA and bigger than cellular phones. They use Symbian,windows mobile or other operating system.

(f) Global System for Mobile Communication:- (GSM) is one of the leading digital cellularsystem. GSM has become the world's most widely used mobile system in use in over 100 countries. It provides integrated voice mail,high speed data ,fax ,paging. It offers the best voice quality of any current digital wireless standard.

(g) Wireless Application Protocol (WAP)– This is a free unlicensed protocol for wireless communication. It makes possible creation of advanced communications services and access to interent pages from cellular phone.

(h) General Packet Radio Service (GPRS) – A packet-linked technology that enables high speedwireless internet and other data communications GPRS Provides about four time greater speed than conventional GSM system.

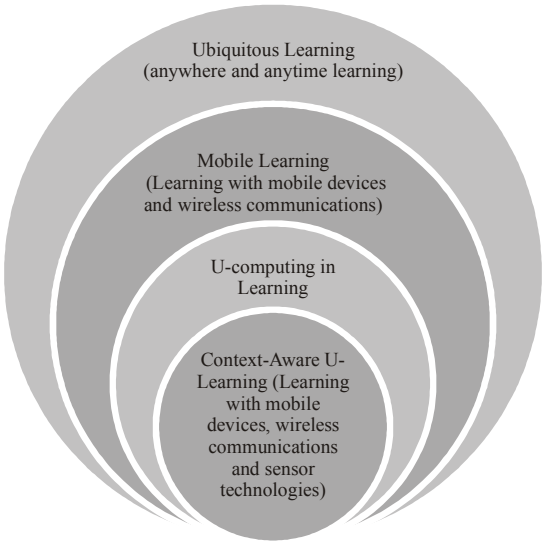
(i) Bluetooth – Wireless technology is short range radio technology. Bluetooth makes it possible totransmit signals over short distance between telephones computers and other devices and there by simplify communication and synchronization.

(j) IEE802.11 is a type of radio technology used for wireless local areas network (WLANs).

U-LEARNING

Ubiquitous learning or u-learning is a new learning paradigm. It is said to be an expansion of previous learning paradigms as we move from conventional learning to electronic-learning (e-learning) and from e-learning to mobile learning (m-learning) now we are shifting to u-learning.

According to Lyytines & yoo (2002). "The evolution of ubiquitous computing has been accelerated by the improvement of wireless, telecommunication capabilities, open network, continued increases in computing power, improved battery technology and the emergence of flexible software architectures."



U-learning is a learning paradigm which takes place in a ubiquitous computing environment that enables learning the right thing at right place and time in the right way. Another example of u-learning is

Computer Supported Ubiquitous LearningEnvironment for Vocabulary Learning Using RFID Tags by Hiroaki Ogata, RyoAkamatsu, and Yoneo Yano.

It provides Computer Assisted Language Learning (CALL) inU.L.E. They called it TANGO (Tag Added Learning Objects) system. In this model, the systemdetects the objects around the learner using the RFID (Radio Frequency identification) tags andprovides the learner the right information regarding language learning.

There are much finest examples of U-learning system. Now, U-learning environments can be set up with the help of the Educationists & the software/hardware engineers. Traditional learning environments can betranslated into digital format by providing the students PDA's like palmtop, pocket pc, tablet pc,laptop etc and expanding wireless infrastructure by providing technical experts to school. Batterycharging problem of Handheld Devices restricts the wide expansion of U-learning. Solid solutionto battery charging is yet to be found by inventing wireless energy transfer which is now attesting stage. Govt. must create innovative Digital Learning Environments & redesign classroomarchitecture by replacing Government Management from Govt. schools by N.G.O.s to increasethe efficiency of institutions. Students may be directed to set up some National of World recordwithout taking any risk to his/her own life. It will make them enthusiastic that is the pre-requisitefor good learning. The variety of prizes in disciplines of regularity, punctuality creativity may beintroduced not only to students but to teachers too to have properly motivated students and teachers.

ADVANTAGE OF U-LEARNING

- **Free Assessment**
- **No Contracts**
- **Individualized Learning Plan**
- **1-on-1 or Small Group Tutoring**
- **All grade levels & subjects**

ICT TECHNOLOGY

ICT stands for "Information and Communication Technologies." ICT refers to technologies that provide access to information through telecommunications. This includes the internet, wireless networks, cell phones and other communication mediums.

ADVANTAGES

(a) Communication - Speed/time – money can be saved because it's much quicker to move information around.

(b) Globalization - Video conferencing saves money on flights and accommodation. ICT has not only brought the countries and people closer together, but it has allowed the world's economy to become a single interdependent system to contact either a business or family member.

(c) ***Cost effectiveness*** - It is cheaper than phone calls. ICT has also helped to automate business practices, thus restructuring businesses to make them exceptionally cost effective.

(d) Greater Availability - ICT has made it possible for businesses to be automated giving clients access to a website or voicemail 24 hours a day, 7 days a week

(e) Bridging the cultural gap – Greater access to technology has helped to bridge the cultural gap by helping people from different cultures to communicate with one another, and allow

for the exchange of views and ideas, thus increasing awareness and reducing prejudice.

(f) ***Creation of new jobs*** -The best advantage of ICT has been the creation of new and interesting jobs.

(g) ***Education*** – Computer's along with their programs and the Internet have created educational opportunities for new generations.

(h) With the help of ICT, images can easily be used in teaching and improving teaching.

(i) ***Complex structure***–By ICT, teachers can easily explain complex structure, instruction and ensure students comprehension.

(j) Through ICT, teachers are able to create interactive classrooms and make the lesson more enjoyable.

Disadvantage

(a) ***Education*** – Computer's along with their programs and the Internet have created educational opportunities not available to previous generations.

(b) ***Lack of job security*** – Experts in a wide variety of fields believe that ICT has made job security a big issue.

(c) ***Privacy*** - Though information technology may have made communication quicker, easier, and more convenient, it has also brought along privacy issues.

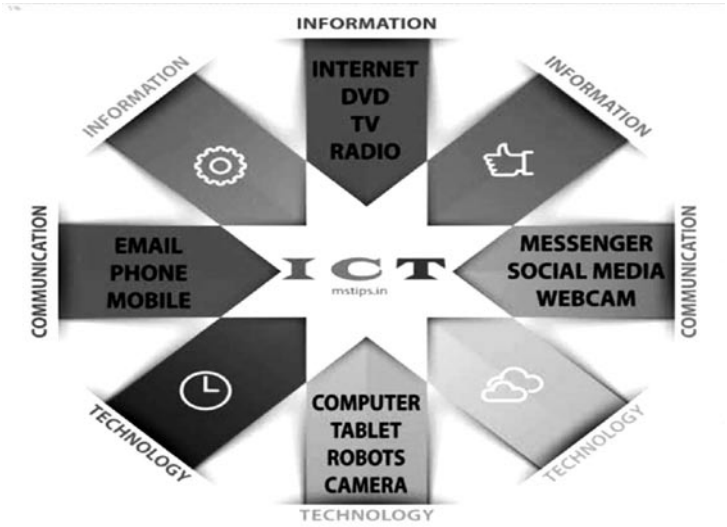
(d) ***Reliability of Information*** – Anyone with access to a computer and an internet connection internet can start a blog or post something up on a website, so just because something's on the web doesn't mean it's reliable.

(e) ***Computer viruses***, worms, Trojans, malware, spam, phishing- any or all can cause chaos and disrupt our daily lives

(f) ***Setting*** - setting up the device can be very troublesome.

(g) ***Expansive*** - too expensive to afford.

(h) ***Lack of experience*** - hard for teachers to use with a lack of experience using ICT tools.



INFORMATION & COMMUNICATION TECHNOLOGY

CONCLUSION

Although it is true that all the approach of learning i.e. E,M & U learning can raise the level of educational development and in Indian scenario it can be very useful for all the level of education as well as teacher education department also.

The first challenge in the path is to change the attitude and mentality of person. The second challenge concerns funds. It is not possible for Govt. as well as people of India do invest huse amount of education to get through ubiquitous computing technologies. Although it is very difficult for Indian concern but if we accept this type of learning approach than many problem in the field of education i.e. student unrest, lack of teachers, wastage and stagnation can be easily solved.

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5

ROLE OF ICT IN QUALITY TEACHING AND LEARNING

*Neha**

The word ICT stands for Information and communication technology. It refers to all those technologies that facilitate the access of information. These technologies can be wireless network, computers, mobile phones etc. ICT has become an important factor for every sector because it is an important source of information. As the world is moving towards digitalization, the role of ICT in education sector is becoming more and more important. In the field of education ICT plays an important role. Colleges and universities are investing huge funds on information and communication technologies in order to make learning more effective and interesting. Students can have access to information or notes regarding their study materials and on the other hand teachers can also utilise the important information in order to gain knowledge. ICT has proved that by using it, teaching and learning can be more interesting than ever before. Students or teachers can go through notes, books, journals etc by using mobile phones or computers and can also save them for future reference. They don't have to invest money on purchasing books or journals they just have to open the required websites and can have the required information at their convenience. They can also store and share the important information as and when required. This paper focuses on analysing role of information and communication technology in education sector.

INTRODUCTION

The emergence of ICT is one of the wonderful gifts of modern science and technology which has brought tremendous changes in library and information. ICT stands for Information and communication technology. It refers to those technologies that provides access to information. This includes internet, computer or laptops, wireless network, cell phones & other communication medium. ICT covers any product that can store, retrieve, update and receive the information electronically (in a digital form). In simple words ICT means combination of computer applications and communication technology for gathering, processing, storing and spreading the information. The application of ICT has become a critical part of learning process for students both inside and outside the classroom setting. It has brought beautiful change in teaching learning process which will contribute towards quality in education and consequently which will develop the overall economy with the injection of quality of knowledge.

RESEARCH METHODOLOGY

Research methodology is basically systematically and theoretical analysis of the methods applied

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to a field of study which includes the process used in collecting the information and data for the purpose of making decisions. In the present paper secondary source of information has been used. Information has been collected from internet, journals and websites etc

OBJECTIVES FOR THE STUDY

A. To know the concept of ICT
B. To Study the role &benefits of ICT in Teaching and Learning
C. To Examine the challenges faced by students
D. To Find out the corrective measures/ suggestions for the Adoption of ICT Teaching and Learning
E. To Draw conclusion

(A) Introduction to the concept of ICT:-

ICT stands for "Information and Communication Technologies". ICT refers to technologies that provide access to information through telecommunications. This includes the internet, wireless networks, cell phones and other communication mediums. Now a days students and teachers try to access valuable information by using ICT tools and also stores that information so that if they want that information in future, they can retrieve this form the files saved.

(B) Role& Benefits of ICT in Teaching and Learning :-

ICT has done tremendous job in making teaching and learning more interesting. Some of its benefits or roles are as discussed below:-

1. Users can select the experts from whom they want to learn.
2. It encourages self- learning: ICT provides great opportunities for making learning more effective according to different needs of learner. For example, students can learn at their own speed, review difficult concepts or skip ahead if they don't need any information.
3. Process of Learning is Problem Based Learning: Whenever students or academicians face any problem then they can have access to desired information by using ICT.
4. It Facilitates Student-centered Learning: It supports a wide variety of educational programme, learning experiences, instructional approaches that are intended to address the learning needs or interests of individual students or group of students.
5. ICT Promotes Independent Learning : If students or academicians face any problem, they don't have to depend upon anyone. They just have use their computers of mobile phones and can get the solution as soon as possible which makes them independent learner.
6. ICT Makes Teaching and Learning Interesting: By using one of the ICT tools i.e. projectors in the classrooms, teaching and learning becomes more interesting than ever before. Students takes more interest in learning if the information is audio-visual. It is has been observed that people remember those things more accurately which were shown them audio-visually.
7. Anytime and Anywhere Information: Students can access the information regarding their study material anytime anywhere whenever they require. So ICT is very convenient tool for students and teachers.
8. Saving the Important Information: Teachers can store an important information which is valuable for their students and can share with students by using their Email address.

Which will reduce the use of paper.

9. Saving of Time, Cost and Efforts: ICT in teaching and learning is doing a great job. Now the information can be shared at any time without bearing much cost. Consequently it is saving valuable time and money of both the parties.
10. ICT Enriches Learning through a Combination of audio, video, images, text etc. which is more interesting than traditional method of teaching.
11. Engagement of Students in Classroom: Teachers can use different methods or online resources to improve the ways of teaching and to keep students more engaged.

(C) Challenges Faced by Students and Teachers in using ICT:-

Despite many advantages of ICT, there are some challenges or issues that students are facing. These challenges are discussed as follows:

- **Challenges faced by Teachers:-**
  1. Time Limitation: Teachers have usually many tasks to perform. Moreover they have to teach all types of subjects along with using ICT tools. They have shortage of time to design, develop and incorporate technology into leaching and learning. Study reveals that most of the teachers have skills of using ICT in classrooms but they do not have enough time to use it. Significant number of teachers identified time limitation as one of the major problem because they have to set up whole system in classroom which will consume most of the time of lecture.
  2. Technical Problems: Firstly the full setup of ICT has to be installed in classroom afterwards teacher is left with less time in which she has to elaborate the lecture. If any technical problem arises in between the lecture then it will be very disturbing for both the parties. Students and teachers may feel anxious and same interest may not be captured again.
  3. Lack of confidence: One of the problems that prevent the teachers from using ICT in their teaching is lack of confidence. Many teachers do not consider themselves to be well skilled with using ICT and feel anxious about using ICT in front of class.
  4. Poor classroom Layout: Poor layout of classroom is another challenge that teachers may face. Students may not be able to see properly the slides shown by teacher which may cause lack of attention and may lead to poor presentation.
  5. Lack of knowledge: Another challenge in front of teacher is lack of knowledge in integrating ICT in practice. They lack practical knowledge of using ICT which acts as a challenge in front of teachers.
  6. Lack of Proper Tools: Unavailability of sufficient ICT tools in the classroom can be another challenge in front of teacher. In case teacher wants to present lecture by using computer/laptop and projector, but there is no such facility available. That will serve as a problem in front of them.
  7. Issue of Maintenance and Upgrading: ICT tools like computers/ laptops, projectors etc requires maintenance and upgrading but due to shortage of funds some educational institutions may not be able to do that because this requires huge investment.
- **Challenges faced by Students:-**
  1. Slow Speed of Computers: If the computer or laptop is running very slow which may be due to technical reasons. This will serve as a challenge in front of students in using ICT.

2. Lack of Internet Facility: If there is no internet facility available then the information cannot be accessed by using ICT tools except the information stored in documents.
3. Lack of Skills: Lack of skills of using ICT tools will be another challenge for students. If students are not well versed about the techniques of using computers laptops etc then they cannot have access to information they want to have.
4. Poor Layout of Classroom: Layout of the classroom is very important for ICT. If the classroom is not structured properly then it becomes very difficult to use ICT tools. For example the structure of classroom is so poor that if teacher is showing the slides by using ICT but some of the students sitting in the corner may not see it properly, then it becomes a problem/ challenge in using ICT.
5. Lack of ICT Facilities: Another major problem in front of students can be lack of proper ICT facilities/tools through which the students can get the valuable information relating to their study.
6. Lack of Time: Students now a days are left with very less or no time for extra activities because of many reasons. Students face the problem of time in which they sit in front of computers and have access to extra information.
7. Unreliability of Equipment: Even the basic ICT equipment and computers possessed by most of the educational institutions are not up to date. Old and obsolete equipment may not work properly and are major source of hindrance to ICT and its application.

(D) Corrective Measures/Suggestions for the Adoption of ICT in Teaching and Learning:

Following are some corrective measures which can be followed to prevent the issues which are faced by the users of ICT:

1. Time Management: Teachers must manage their time for using ICT in classrooms. They should prepare for presenting the lecture by using ICT tools well before time. They should arrange all the things before time so that there will be no shortage of time.
2. Proper Setup of ICT in Classroom: There should be proper setup of ICT tools in classroom. In the modern scenario, classrooms must have modern technology which will make teaching and learning more interesting.
3. Proper Training: The tutor must be provided proper training for using ICT tools i.e. computer/ laptop, projector etc in the classroom. If the tutor is provided proper training the he/she will feel confident to present in the classroom.
4. Ensuring Availability of ICT Tools: There should be the availability of every ICT tool which is required in the classroom. Unless otherwise the teacher will not be able to make it possible with insufficient tools.
5. Resolving the Issues of Computers: If the computers of laptops are not working properly or there is any technical problem regarding the working of computer, then this issue should be resolved and every tool should be checked after time to time.
6. Ensuring uninterrupted internet facility: Students may face an issue with internet facility. This issue should be resolved because students now a days are learning more through computers or mobile phones by using internet facility. So there should be uninterrupted internet facility.
7. Inculcating skills: Students must be provided with required proper skills by which they can

operate computer/laptops so that they can have access to important study material online and can save them.

8. Ensuring better Environment of classroom: The layout of class is an important factor. There should be proper environment in the classroom and also outside the classroom which will not interrupt the smooth presentation i.e. the environment should not be noisy.
9. Updating ICT Tools: ICT tools should be updated after time to time so that their reliability and proper working can be assured.

(E) Conclusion

With the advent of information and communication technology teaching and learning is becoming more interesting than it was. Studies have shown that now teachers are more interested in demonstrating the examples to students by using ICT. On the other hand students are also taking active participation in this by using ICT tools in learning. They learn through searching topics related to their study and also save them for future reference. Despite some challenges that ICT is facing in its implementation stage, its benefits are countless in every sector and so in teaching and learning. By using ICT tools in education, students are now making themselves well versed to using new technologies along with their learning. They are becoming multitalented and alert.

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6

BEST TEACHING AND LEARNING PRACTICES WITH ICT

*Poonam Devi**

This article discusses about the topic best teaching and learning practices with ICT. Information communication technologies at present are affecting each part of human life. They are playing important roles in work places, business, education and entertainment. Teacher, student, administrator and every individual with education are prevalently utilized ICT. Teacher use ICT for making teaching learning process simple and interesting. A capable teacher has a several skills and methods for giving successful teaching. In modern science and technological societies education demands more knowledge of teacher regarding ICT and skills to use ICT in teaching –learning process. Consistent and Comprehensive Evaluation helps students and in addition teachers to utilize more innovation for making teaching learning progressively appealing for the advancement of our future generation. Teachers must know the utilization of ICT in their branches of knowledge to help the students for learning more effectively. ICT empowers self-guided learning through different devices, for example, task, PC and so on because of this the instructing learning undertaking has turned out to be increasingly gainful and important. ICT encourages the exchange among producers and users by keeping the students refreshed and enhancing teachers capacity and capacity cultivating a live contact between the teacher and the student through email, chalk session, e-learning, electronic picking up including web, intranet, extranet, CD-ROM, TV sound tape. Edusat technology has turned out to be powerful media for interactive participation of specialists and students and it comes to the inaccessible

Keywords: *Importance and scope of ICT in education.*

INTRODUCTION

The use of ICT in the classroom teaching learning is essential for it gives chances to teachers and students to work, store, control, and retrieve information, support autonomous and dynamic learning, and self-responsibility regarding learning, for example, distance learning, motivate teachers and students to continue utilizing learning outside school hours, plan and get ready exercises and structure materials, for example, course content conveyance and encourage sharing of resources, expertise and advice. This flexible instrument has the ability not just of connecting with students in instructional exercises to build their adapting, however of helping them to take care of complex issues to enhance their cognitive skills.

ICT is a generic term alluding to different technological devices and resources, which are being utilized for making, gathering, editing, distributing and managing information in different structures. The advanced innovations use communication media so as to give required information

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at the right tie at right place. ICT contains IT (data Technology) and CT (Communication Technology). Information Technology is characterized as the investigation or utilization of any electronic hardware or interconnected framework for acquisition, storage control, the executive's transmission or gathering of information or data. Communication Technology is characterized as the examination or utilization of any electronic framework for sending, accepting and exchanging information between people or gatherings. It encourages communication between people or gatherings regardless of not physically introduce at a similar area. ICT is an electronic methods for capturing, processing, storing, communicating information.

Need of ICT in Teaching Learning Process

Our society is quickly getting to be dependent on innovation where ICT assumes an important role in different fields now days. It helps the process of learning dependent on overall research. ICT adequately empower to impart their ideas and to present their work.

- To make adapting straightforward.
- To break proficiency barriers in communication.
- To create knowledge society.
- To stimulate improvement, economic and prosperity in nation.
- To influence you to interface with worldwide network.
- To take an interest in quickly evolving world.
- To empower fast access to thoughts and experiences from different types of individuals.
- To build up an arrangement of gathering and scattering educational information.
- To empowers adapting 'anyplace, whenever and in any case'.
- To promote independent learning.
- To promote the way of life of learning.
- To improve the quality of learning.
- To enhance the nature of learning.
- To promote innovation proficiency of all citizens.
- To support imparting experiences and information to other people.
- To make progressively proficient utilization of existing programming abilities.
- To share research and other useful information effectively.

SCOPE OF ICT IN EDUCATION

ICT includes every one of those contraptions that bargain with the processing of information for better and effective communication. In instruction, communication process happens between educators, students, the executives and administrative faculty which requires a lot of information to be put away for retrieval as and when required, to be disseminated or transmitted in the desired format. The hardware and software like OHP, Television, Radio, Computers and related programming are utilized in the educational procedure. Anyway ICT today is for the most part centered on the utilization of Computer innovation for processing the information.

IMPORTANCE OF ICT IN TEACHING LEARNING PROCESS

The new ICT empowers self-paced learning through different instruments, for example, assignments, PC and so on because of this the teaching learning endeavor has become to be

progressively gainful and significant. ICT encourages the exchange between producers and users by keeping the students updated and improving teacher's ability and capacity cultivating a live contact between the teacher and the students through email, chat session etc. This promotes active learning, sharing of ideas, discussion and also provides immediate feedback. This actuates paced learning and permits compelling mapping of learning way ways. This requires high caliber significant digital content to be made accessible to teacher and students. Teacher especially ought to have updated learning and abilities to utilize the new computerized devices and resources to enable students to accomplish high academic standards. We definitely need a vision to prepare our students to meet the developing patterns.

ICT which incorporates radio and TV just as other high innovation more up to date digital devices, for example, PCs and Internet have been treated as commonly incredible empowering instruments for educational change and reform. On-line teaching as innovative teaching has been acknowledged generally, which incorporates on-line networking, role of e-moderator, e-learning, Websites which are prominent with instructors and understudies are Google, Yahoo, Gmail, Rediffmail, Wikipedia. The modern concepts of ICT have helped experts to adapt the difficulties for digital information and innovation through the improvement of digital literacy resources.

Proper utilization of ICT can change the entire teaching-learning processes prompting change in perspective in both content and teaching methodology. ICT can possibly rise above the hindrance and space. ICT incorporation in the field of education has affected hugely in enhancing the nature of education. It is generally believed that ICT coordination will help us in making education increasingly available and affordable. Increasing role of ICT will make education increasingly democratic that is enhancing the quality education services accessible to even students sitting in distant corners of the nation. The new condition of intuitive student centered methodology of ICT has totally meta-morphosised the procedure of education i.e delivery and dissemination. The technological creativity student will help create sharing of learning to perform tasks in a better way and to build up their ability and skills to keep pace with the quick changes yet the pace of progress is fast to the point that what was avant-garde few years ago is only a thing of past. We should not enable the ICT related chances to slip out of our hands.

We should enable our childhood with the most recent innovation to tap the most recent abilities and hidden capability of our youth population. There is considerable expectation that innovation can extend and enhance education in all dimensions with extraordinary reference to plan and substance of instructional materials, delivery, and assessment and feedback. In innovation improved learning teacher's role will be all the more difficult and certainly not the same as what is by and by the conventional classroom teaching. In the new role he will be more an director/coach or a facilitator, on the grounds that the ET upgrades the quality of teaching and learning by exciting request, curiosity and exploration.ICT will manage the cost of chance to the person for self-paced learning, which takes into account student's capacities and aptitude.

ICT is an all-extended term for Information innovation which is a technological source to make information accessible at the ideal time, right place in the right form to the right user. Prior, one needed to wait that the newspapers will get the information over the world. Presently with the more smarter technology, information can be gotten to from anyplace utilizing cell phones and devices. This is made possible with the help of Information and Communication Technology. Information technology has been affecting our lives in the recent years in the fields of education, healthcare, and

business. Going an extra mile, Information and communication technology in schools has had a noteworthy effect.

Here are few attributes that make ICT in education a prominent school communication tool.

a) It additionally gives access to the advanced library where information can be recovered and stored beyond textbooks.
b) It offers the wide variety of services.
c) It is adaptable and gives open to learning.
d) It motivates students to learn.
e) It encourages communication and promotes inventiveness.
f) It is reliable and gives interactive learning experiences.

ADVANTAGES OF ICT IN EDUCATION

- **Wider learning opportunities for pupils:** Application of most recent ICT in education has given numerous options to the students to select the course of their choices. Numerous Online courses are accessible for them to choose any according to their aptitude and interest. Students can assess their own advancement through various tests, prepared to utilize Online tests. This can ensure satisfaction of the employment required in the job market in this way limiting the issue of unemployment. It can likewise provide more efficient and effective citizens to the society according to the changing needs.
- **Wider scope of communication media:** With the appearance of ICT, changed methods for communication are being presented in the teaching learning process. offline learning, online learning, mixed learning are some of the resources that can be utilized in educational institutions. Collaborative learning, individualized learning methodologies can improve the nature of group just as individual learning with the real society. This can ensure the relevance of information.
- **Quick access to information**: Information can be accessed to in seconds by associating with the internet and surfing through Web pages.
- **Easy accessibility of updated information**: Sitting at home or at any comfortable place the desired information can be accessed effectively. This causes the students to get familiar with the updated content. Teachers also can keep themselves side by side of the most recent teaching learning techniques and related advancements.
- **Connecting Geographically dispersed regions:** With the progression of ICT, education does not stay limited inside four walls of the educational organizations. Students from various parts of the world can learn together by utilizing on the web, disconnected resources. This would result in the enhancing learning experience. Such collaborative learning can bring about developing.
- different reasoning capacity in students,
- Global points of view
- Respect for varied nature of human life and cultural assimilation.
- Facilitation of learning
- **Catering to the Individual differences:** ICT can contribute in taking into account individual needs of the students according to their abilities and interest. Crowded classrooms have always been a test for the teacher to think about the requirements of each student in the class.

Conclusion

They are playing important roles in work places, business, education and entertainment.ICT has become one of the useful tools of modern society with in brief time. ICT encourage the preparing, transmission and display of information for electronics. ICT gives an outstanding chance to meet imperative advancement objectives, for example, basic health care, education, research, learning process, administration and far more effectively than before.

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7

ONLINE MODELS FOR PROFESSIONAL DEVELOPMENT IN THE ERA OF E-LEARNING

*Narinderpal Singh**

Prospective e-teachers who want to provide a high-quality learning experience for their e-learners should plan to participate in a well-organized, well-facilitated fully online course to see how it feels from the student perspective, whether or not it is required by their own institutions. Through this type of immersion in e-learning as professional development, it is likely that the quality of online instruction will continue to improve, resulting in better student e-learning outcomes in the future. Four kind of professional development online models i.e course supplement model, online lecture model, online correspondence model, online collaborative model emphasizes the full potential of technology to enable teacher-teacher collaboration during their training course.For developing countries, the ideal online teacher professional development program may be a hybrid of these models, combining the high-quality content delivery (lecture model) with a system of mentors/facilitators for personal feedback (correspondence model) and frequent participant collaboration on assignments/learning activities (collaborative model).

***Key-words**: E-learning, E-teaching, Models for online professional Development.*

INTRODUCTION

These are changing times in education systems around the world. With the start of the new millennium, many societies are engaging in serious and promising educational reforms. One of the key elements in most of these reforms is the professional development of teachers; societies are finally acknowledging that teachers are not only one of the 'variables' that need to be changed in order to improve their education systems, but they are also the most significant change agents in these reforms. This double role of teachers in educational reforms – being both subjects and objects of change – makes the field of teacher professional development a growing and challenging area,and one that has received major attention during the past few years.E-learning represents an important resource for teacher professional development. E-learning can provide teachers with access to resources, courses, tools, training programs, online communities, and opportunities to collaborate with other educators around the world. The e-learning has recently become one of the fastest growing components of the high technology sector, and had significant impact on teacher education. Currently, most developed nations schools have developed Web access inside classrooms. That is why it is important for policy makers to consider the potential value of e-learning to prepare and

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update teachers' skills to help prepare students with the skills needed to be successfully integrated in the 21st century information society. E-learning is rapidly developing because of four main factors:

- Gradually increasing availability of higher-speed computernetworks to deliver information and services;
- Recognition that teachers need to "work smarter" withconstant updating of skills;
- Convenient just-in-time education for teachers (often"anytime, anywhere"); and
- Cost-effective alternative to traditional classroom-basededucation and training.

Relation between e-learning and e-teaching

Conceptual frameworks for e-learning and e-teaching are different. E-learning focuses on the learner and the learning process. The term "teaching" is used in two ways: teaching as the teacher activities and teaching as the system of instructional activities (teachers activities are incorporated in the teaching activities as the system of instructional activities). Then, there are two meanings of the "e-teaching" concept. According to Nakajima, e-teaching is "the system designed to improve teachers' performance, and their self-regulation and motivation. Its service designs are aimed at supporting teachers to teach effectively in an e-learning environment". The architecture of e-learning is centred on learner. The architecture of e-teaching "needs to be centred on teachers". E-teaching is not just prerequisite to e-learning, but it can be a great innovation in education.*e-teaching* can be defined in a broader sense as the instructional system of processes and activities designed according to the ICT development, characteristics, and models of e-learning, principles of formal communication, principles of e-education, principles of competence-based education system etc. Development of e-learning systems and e-teaching modalities makes possibilities to involve them in teachers' professional activities and development in several ways:

- If e-learning/e-teaching is the technology which supports the process of teachers' learning of university courses, the teacher is in the position of e-learner;
- If e-learning/e-teaching is the content of the teachers' university curricula in order to be applied in the teaching process, the teacher switches from the position of e-learner to the one of e-teacher in blended or total e-learning systems.

In this structure of teachers' activities, there are differences between three modalities of e-support of teaching (Krneta et al. 2007):

(1) Using attainment of the information-communication technology at the instruction; info technological system and computer in that system are the instructional tools;
(2) Realization of e-learning as autonomous educational procedure;
(3) Realization of e-teaching as a developmental instructional (didactic) system...

WHY E-LEARNING FOR TEACHER DEVELOPMENT?

The e-learning can be defined as: "The delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material". E-learning is emerging as a solution for delivering online, hybrid, and synchronous learning regardless of physical location, time of day, or choice of digital reception/distribution device. It involves a greater variety of equipment than online training or education, for as the name implies, "online" involves using the Internet or an Intranet. CD-ROM and DVD can be used to provide learning materials.

E-learning gives everyone who needs to learn a new skill, prepare for a new job, or pursue a new career the opportunity to complete training, get a certificate, or earn a degree without moving or leaving current employment. E-Learning extends the reach of the campus and corporate learning center, and it provides learners with more ways in which to participate in education, training, and professional development, on terms increasingly defined by learners themselves, than ever before. E-learning has many qualities that make it beneficial for teacher development including:

- Anytime: Future or in-service teachers can access learning resources, courses, online communities, or training programs at any time that is convenient for them, whether early morning, late night, or on weekends.
- Anyplace: Learners can communicate with others and access resources, instruction, and expertise anywhere there is a computer with Internet access.
- Collaboration and Networked Communities: E-learning provides new opportunities for educators to work and conduct research together, or to share problems, innovations, and lesson plans.
- Pedagogical Approaches: E-learning may act as a catalyst to transform the traditional paradigm of teaching and learning. Blending e-learning with face-to-face instruction may create a richer and more interactive learning environment. (Resta, 2005, p. 2)

The E-learning comprises of two dimensions that can be shown in the following table:	
Content	
Non organized	Resources found on the Web
Co-constructed	Creating new resources
Communication	
Enriched	Using the Web for communication
Professional	Using the Internet beyond communication

- Getting access to information: Various resources are available on the Web. Lots of educational resources and millions of books are digitized and made available online.
- Taking part in courses online: There has been exponential growth in the offering of online courses and degree programs by higher education institutions. Nowadays, there are 60,000 courses listed on Web. There is increased global exchange of virtual courses and programs among universities.
- There has also been rapid growth in online teacher education courses and degree programs to address educational development needs of rural, isolated communities. The Web has the potential to provide professional development opportunities for existing teachers and to be an important resource in the preparation of new teachers.
- Using blended learning: This basically means using the Web with regular classroom-based learning. In a blended learning environment, participants use online resources and tools and also meet face-to-face on campus as members. Types of blended learning activities include:
  - integration of Web-based resources and tools in one's teaching;
  - production of Web pages for one's classroom; and
  - Use of online follow-on forums, discussions, and collaborative activities.
  - Creating network communities: This involves the development of virtual communities of

practice and knowledge-building communities among teacher educators and pre-service and in-service teachers.

Characteristicsof new perspective of professional development:

1. It is based on constructivism rather than on a 'transmission-oriented model'. As a consequence, teachers are treated as active learners who are engaged in the concrete tasks of teaching, assessment, observation and reflection.

2. It is perceived as a long-term process as it acknowledges the fact that teachers learn over time. As a result, a series of related experiences (rather than one-off presentations) is seen to be the most effective as it allows teachers to relate prior knowledge to new experiences. Regular follow-up support is regarded as an "indispensable catalyst of the change process".

3. It is perceived as a process that takes place within a particular context. Contrary to the traditional staff development opportunities that did not relate 'training' to actual classroom experiences, the most effective form of professional development is that which is based in schools and is related to the daily activities of teachers and learners. Schools are transformed into communities of learners, communities of inquiry , professional communities and caring communities because teachers are engaged in professional developmentactivities. The most successful teacher development opportunities are 'on-the-job learning' activities such as study groups,action research and portfolios.

4. Many identify this process as one that is intimately linked to school reform, as professional development is a process of culture building and not of mere skill training which is affected by the coherence of the school programme. In this case, teachers are empowered as professionals, and therefore should receive the same treatment that they themselves are expected to give their students.

5. A teacher is conceived of as a reflective practitioner, someone who enters the profession with a certain knowledge base, and who will acquire new knowledge and experiences based on that prior knowledge. In so doing, the role of professional development is to aid teachers in building new pedagogical theories and practices , and to help them develop their expertise in the field.

6. Professional development is conceived of as a collaborative process. Even though there may be some opportunities for isolated work and reflection, most effective professional development occurs when there are meaningful interactions, not only among teachers themselves, but also between teachers, administrators, parents and other community members.

7. Professional development may look and be very different in diverse settings, and even within a single setting, it can have a variety of dimensions. There is not one form or model of professional development better than all others and which can be implemented in any institution, area or context. Schools and educators must evaluate their needs, cultural beliefs and practices in order to decide which professional development model would be most beneficial to theirparticular situation.

Professional development from e-learner to e-teacher

New strategies of teachers' education for new professional roles and competencies in the knowledge society have been developed. According to the continuality of the teachers' professional/ vocational development, the teachers' professional improvement regards the development of three fundamental professional competencies: educational (pedagogic), programme or course content competencies as well as communication competencies. During past decade, "a large number of

initiatives, coming from both the research community and educational policy authorities, have been directed towards the preparation of teachers in order to enable them to integrate ICT in their everyday educational practice" and to develop teachers' skills in the pedagogical application of ICT in teaching and learning processes. The investigations of e-teaching and teacher in e-teaching system represent a new field of research. Then, teachers' competence for e-teaching is a new part of teacher's pre-service and in-service professional education. The investigations of e-education competencies development in the pre-service education are more frequently conducted than investigations of the in-service development of e-education teaching competencies. Teachers intentions to use ICT in their instruction are significantly determinated by the teachers' perceptions of ICT usefulness. Investigation of the influence on teachers' perceptions of technology and professional development, which is aimed to integrating ICT in instruction, derives five determinated factors: continuous ICT support and coordination; ICT pedagogical development enabling teachers to use technology in everyday classroom practice; Partnership (collaboration with specialist teachers and colleagues in the school); Availability of sophisticated educational software in schools; ICT infrastructure development in schools. Mishra and Koehler developed the Model of Technological Pedagogical Content Knowledge. ICT integration in everyday teaching and learning system is defined by three key components: knowledge of the pedagogy that is applicable to the specific content; knowledge of how subject matter is transformed by the application of technology; knowledge of how technology can support pedagogical goals.

Models for Online Professional Development

Many different technologies have been used to support orprovide teacher professional development. Often groupedunder the vague heading, "distance learning," they include basic correspondence courses, broadcast television, interactiveradio, and video. This section focuses on the potentialof new digital technologies (the Internet, digital radio, CDROMs, DVDs) for teacher professional development.To begin, it is important to distinguish among differentapproaches or models for online professional development.As Bob Tinker of the Concord Consortium states, "Broadclaims about the value of online learning need to be qualified by the kind of model being discussed."

Four models are discussed here, based on Tinker's taxonomy:

- The course supplement model,
- The online lecture model,
- The online correspondence model, and
- The online collaborative model.

The course supplement modelcomplements a traditional faceto-face teacher training course with online resources thatoften include readings, suggested activities, chat rooms anddiscussion forums, and answers to problems and tests. Manydeveloping countries looking to improve the quality of their pre service and/or in service teacher professional development programs can begin here. However, this approach does notreduce costs (it increases them), nor does it replace face-tofaceinstructional time (the primary cost) or improve scalabilityof training.

The online lecture model offers opportunities to reduce instructional costs and reach large numbers of teachers. Itemphasizes primarily one-way delivery of high-quality content. Considerable resources often are invested in developingonline instructional resources, with personal contact providedover the Internet through instructor responses to assignments and exams, moderated

discussion groups, online"office hours" for questions and answers, and collaborativeproject work.For motivated and disciplined teachers, this model can be an effective way to provide professional development at areasonable cost, particularly in countries where qualifiedteachers are in short supply. However, the loss of personal contact implied by this model typically results in extremelyhigh dropout rates (around 50%).

The online correspondence model is similar to the online lecturemodel, but it usually invests fewer resources in contentdelivery in exchange for increased personal contact with the teacher through graded assignments and examinations.Indeed, quite a few traditional correspondence training programsthat used postal systems to exchange the work of participants and instructors have transferred their courses to theInternet. The cost is relatively low, but the lowerquality/quantity of instruction (much of the training is actuallyself-paced reading) limits this model to highly motivatedteachers and specialized content.

The online collaborative model emphasizes the full potential oftechnology to enable teacher-teacher collaboration duringtheir training course. Typically, it emphasizes asynchronous collaboration (essential for learning across time zones, lesscostly, and easy to implement); limited enrollment (nogroups larger than 20 teachers, although these may be partof courses with much larger enrollments); and expert facilitation,trust-building activities among participants, explicitschedules, high-quality learning materials of many kinds,continuous assessment, and quality assurance with respect toinstructional design, subject matter content, delivery, and impact. This model often requires more time and more money to design and deliver than traditional face-to-facecourses, but it does offer many advantages (higher impact, anytime and anywhere learning, modeling of what teachers maydo in their classrooms with their students, etc.).

For developing countries, the ideal online teacher professionaldevelopment program may be a hybrid of these models, combining the high-quality content delivery (lecture model)with a system of mentors/facilitators for personal feedback(correspondence model) and frequent participant collaborationon assignments/learning activities (collaborative model).

CONCLUSION

E-learning plays a crucial role in today's life and in modern education. Its importance lies in the fact that people are finding that e-learning can make a remarkable change in teaching/ or learning: to how quickly they master a skill; how easy it is to study; and how much they enjoy learning. Besides, it can contribute to policy-making in education: to raising standards; improving quality; removing barriers to learning and participation in learning, preparing for employment; up skilling in the workplace; and ultimately, ensuring that every learner achieves their full potential. E-learning can also be best exploited in teacher education and training.e-learning is a crucial factor in teacher development and both ICTs and E-learning can help teachers' professional development through the use of online models.Teacher professional development through use of online modelsto improve teaching and learning needs to be:

- Multifaceted,
- Modular,
- Authentic,
- Collaborative,
- Incentivized,

- Iterative and ongoing,
- Allocated sufficient time and financial resources,
- Cost-effective, and
- Evaluated and revised.

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8

ROLE OF ICT IN TEACHING & LEARNING PROCESS

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Age of information and revolution of communications is the result of transactions in Industrial age in a new form of Information & Communication Technology (ICT). Information & Communication Technologies are those technologies used for collection, recording, reserving, processing, researching, transfer & receipt of information led to teaching and learning scope. ICT is a part of our lives for the last few decades affecting our society as well as individual life. ICT which is now broadly used in educational world. Teacher, Student, administrator and every people related to education are popularly used ICT. Teacher use ICT for making teaching learning process easy and interesting. In modern science and technological societies education demands more knowledge of teacher regarding ICT and skills to use ICT in teaching – learning process. The knowledge of ICT also required for pre-service teacher during their training programme because this integrated technological knowledge helps a prospective teacher to know the world of technology in a better way by which it can be applied in future for the betterment of the students. Nowadays ICT s are transforming institutions and classrooms a new look by bringing in new curriculum based on real world problems, projects, providing tools for enhancing learning, providing teachers and students more facilities. ICT also helps teachers, students and parents to come together. This is one of the most important principle in teaching/ learning process for finding some scientific skills, self-guidance, cooperative learning, providing of active and transaction learning process, involvement in learning process, partnership in knowledge production, project-based educational activities. The most important issue in the present study is the educational programmes (self regulation, self-learning, self-justice, self-evaluation and innovative thought) and the purposed model is based ICT.

Keywords: *ICT, Technology, pre-service, Teaching-Learning; self-regulation, self-learning, self-leading, self-evaluation, innovative thought.*

INTRODUCTION

Information and Communication Technology (ICT) in education is the mode of education that uses information and communications technology to support, enhance, and optimize the delivery of information. Worldwide research has shown that ICT can lead to an improved student learning and better teaching methods. The new ICT enables self-paced learning through various tools such as assignments, computer etc. as a result of this the teaching learning enterprise has become more productive and meaningful. ICT helps facilitate the transaction between producers and users by keeping the students updated and enhancing teacher's capacity. This promotes active learning,

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sharing of ideas, discussion and also provides immediate feedback. This activates paced learning and allows effective mapping of learning path ways.ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters. Teachers are at the core of any living society. Technologies play an important role in training programme of teachers. Student accesses knowledge and information through digital media. The classroom is now changing its look from the traditional one i. e. from one way to two way communications.

Now teachers as well as students participate in classroom discussion. Now Education is based on child centric education. So the teacher should prepare to cope up with different technology for using them in the classroom for making teaching learning interested. For effective implementation of certain student centric methodologies such as project-based learning which puts the students in the role of active researches and technology becomes the appropriate tool. ICT has enabled better, swifter communication, presentation of ideas more effectively. It is an effective tool for information acquiring thus students are encouraged to look for information from multiple sources and they are now more informed then before. So for this reason ICT is very much necessary for teaching and learning.

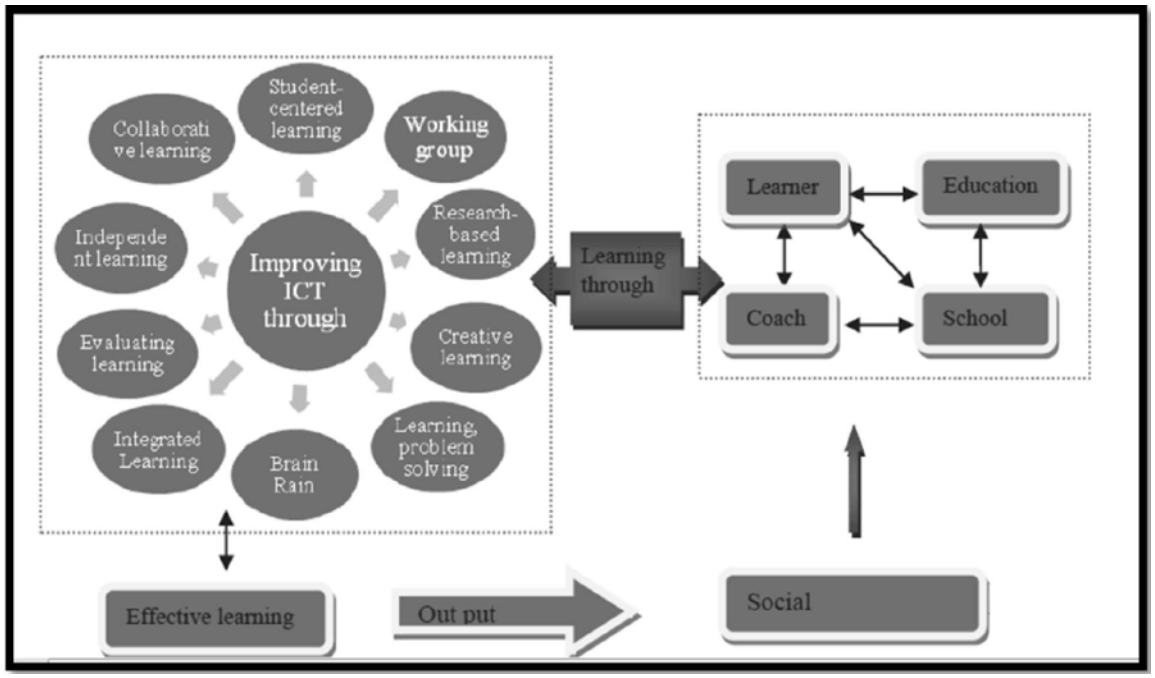
OBJECTIVES OF THE STUDY

In this paper an attempt has been made to study ICT in detail to achieve the specific objectives. The objectives of the study are:-

- A Model for Improving teaching and learning through ICT.
- Importance of ICTs in teaching methodology.
- The role of technology in learning.
- Pedagogies of teaching with ICT.
- Computer technology in teaching and learning.
- Information and communication technology (ICT) in education.
- ICT Educational Resources for Information, Collaboration and Learning.
- The advantages of ICT in Teaching / Learning.
- Conclusion

A Model for improving teaching and learning through ICT

One of the ideal goals of education system is to increase learning quality of students and their scientific and cultural growth. It is possible by the efforts of persons in charge and involved persons in educational system from one side and also instructors and learners in on the other for providing a qualitative change in educational system and cultural-social system as well. Of course it seems that instructor and leaner have great and more critical roles in this process. Instructors should try to teach self-confidence to all learners. Any access to the content and learning resources through ICT is a network in classrooms. ICT could be effective either through teaching methods including Group learning, Research-based learning, cooperative, independent, evaluator, integrated and innovative learning.



IMPORTANCE OF ICTS IN TEACHING METHODOLOGY

Integration of ICTs in education has provided many forms of communication with flexibility and easiness. Use of ICTs in education have very important role in teaching methodologies with positive impact on the way of dissemination of content knowledge and effective learning strategies. Teachers must incorporate the use of ICT into their pedagogy ICT must be used to meet educational objectives. The affordances of ICT can also be part of this creative interaction as people exploit the distinctive features of ICT that enable digital technologies to act as tools in creative processes. ICT provide supportive environment to teacher educators and help students to understand the concepts and content knowledge. ICT has provided opportunities to access variety of material increasing gaps among haves and haves not which has termed as digital divide. Integration of ICT in teaching methodology makes students active participants provide opportunity to learn in classroom and from external sources. Enhance teamwork, encourage them to ask questions and find solution of problems.

THE ROLE OF TECHNOLOGY IN LEARNING

There are various reports published by different organizations like UNESCO about current information technology caused basic changes in learning process. Today with regard to variety of societies, human beings, innovations and their interests, it is necessary to have variety of learning methods. But this may need a new framework of teaching with enough reflection as well. Learning is not limited only to what has been performed in classroom. But it may lead to benefiting from technology for development of education for all levels of society. Technology makes the learning environment more attractive and applicable.

PEDAGOGIES OF TEACHING WITH ICT

"The considered use of ICT can transform the teacher role, creating new learning environments.

Teacher pedagogies will determine the extent to which the possibilities offered by technology are realized in education settings. During a professional development program all the teachers created a list of strategies for integrating ICT into their classrooms. This list includes:

- Planning - selecting and preparing websites, programs and ICT resources so that they are available for both teacher and students when required.
- Using new resources - not being afraid to try different technologies.
- Promoting student reflection - encouraging students to use blogs and networks to discuss tasks and reflect on their own work and that of others.
- Cooperation and collaboration - encouraging students to become experts, problem solve, and help each other with their ICT work.
- Working within constraints - being creative with the resources available.

COMPUTER TECHNOLOGY IN TEACHING AND LEARNING

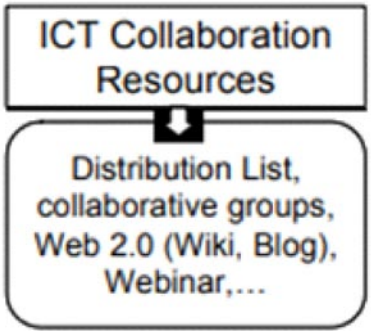
The computer is now regarded as a super teaching machine. Its use in education has been tried as an innovation and it has proved its teaching efficiency in many developed countries. Teaching about computer makes students understand what computers do, what computers cannot do, and how computers could be used to facilitate learning. Computers can be employed in teaching in three generic ways. They can be used as a learning tool, as the object of the study and as a planning and management tool for teachers or institutions administrators. Nowadays computers are used in the classroom as a support system to improve the teaching-learning process. It is also possible to use the computers to teach new skills or concepts, to provide remedial teaching, to facilitate development of creative thinking and problem solving.

Information and communication technology (ICT) in education

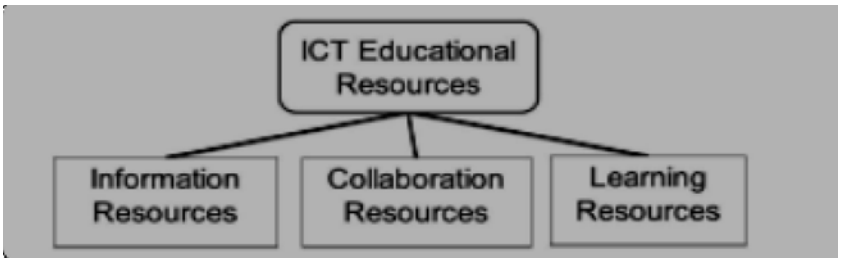
The emergence of technology has been further applied to information, which has revolutionized the process of the transmission of information like sharing and interchanging information such as knowledge, mental skills, motor skills and attitudes through the use of mass media especially electronics. Achieving success in this sharing and interchanging through communication which consists of receiving i.e. hearing or seeing, accepting as nothing can change unless information is accepted and getting some action i.e. changing performance or behavior.

ICT Educational Resources for Information, Collaboration and Learning

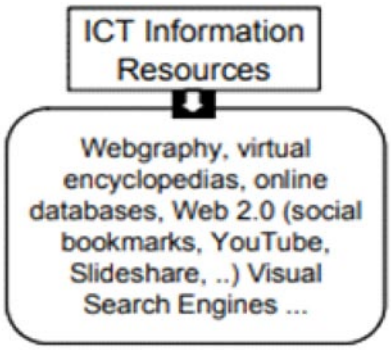
ICT educational resources can be analyzed according to their use as resources for information, for collaboration and for learning.



ICT and **Information Resources** can provide updated data in different media formats. Some ICT Information Resources will include the following: Webgraphy, virtual encyclopedias, online databases, web 2.0 tools (e.g., social bookmarks, YouTube and Slide share) and visual search engines based on web features. Webgraphy documents include online journal articles, conference papers and conferences, documents produced by institutions, and eBooks. Virtual encyclopedias allow detailed search of a topic. Some examples are Wikipedia and Wikieducator which is used for publishing educational materials.

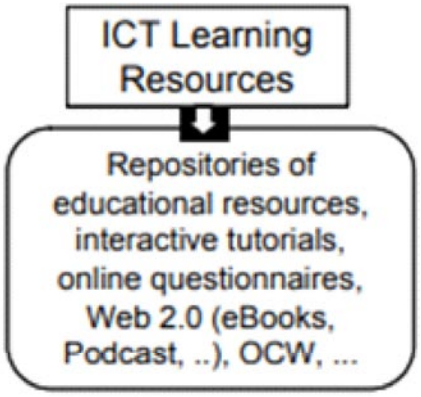


ICT **resources for collaboration** offer users the opportunity to participate in professional networks and co-create resources. Collaborative work allows the assessment of existing resources and their use in different contexts and then analyzes these resources to enable their creative use in collaborative learning contexts. Some collaborative ICT resources are mailing lists, groups and collaborative web 2.0 tools such as wikis and blogs. Webinar is a widely used tool for organizing online seminars. Distribution lists allow the receipt of regular information through email about events, articles, links based on the theme of the lists to which the user has subscribed. Collaborative groups offer a web space where those interested in a particular topic are able to reflect through thematic forums and share documents.



ICT **resources for learning** offer the possibility of acquiring knowledge, attitudes and procedures during the teaching process. ICT resources offer various forms of work with content and activities. An integrated design of learning resources is an important part of the instructional process that helps achieve the expected learning outcomes. Some ICT learning resources are repositories of educational resources, interactive tutorials, online quizzes, web 2.0 tools (e.g., eBooks, podcasts) and open online courses. Repositories of educational resources offer a variety of teaching materials created by educators, researchers, students and others. These can be repositories of learning objects composed of content units with activities and evaluation tests. Interactive tutorials

allow one to process guided presentations using text, graphics and audio. These resources can replace the closeness of face-to-face tutoring sessions in self-learning and virtual environments. Online questionnaires as a learning resource can be used in diagnostic, monitoring and final evaluations of training sessions. The online format can also be used to determine anonymously the degree of satisfaction regarding training activity.



THE ADVANTAGES OF ICT IN TEACHING/LEARNING

- **Revising & supplying of items**: Submission of ideas, processes and activities which are difficult or impossible without technology. For instance technology could provide some of the processes of teaching easily and within shortest periods of time through simulation which may need to more times and places.
- **Access to information**: Learners may find easy access to some information through different technologies such as internet which in the past was not possible. It is important to have access to this information for two reasons. Firstly it makes it possible to study some interesting and motivating topics for the learners and secondly provides suitable content for those institutions with weak resources and depending upon currently on old contexts and books.
- **More variety and changes**: Benefiting from technology creates a fundamental change in learning process. Some of the changes are easy learning process, lack of time & place limitations, accelerating of time and data analysis.
- **Cooperation:** By cooperation in group & scientific activities of learners, there will be a humanistic and group efforts for better meaning and a conceptual learning. Learners may collect wide range of information through cooperation and supply it for the class. Instructor is able to collect and classifying the information and provide the results for the class.
- **Providing new educational position:** Benefiting from ICT will provide new situation for the students in which the instructor may provide more concepts on both practical and imaginary forms for the learners. The most important item is imaginary and mental intelligence of learner's besides speech and hearing intelligence.
- **Focusing on different types of learning intelligence:** Learning intelligence means the acceptance of learners through different ways such as Hearing intelligence, Visiting intelligence, Speech intelligence, Mental intelligence, Imaginary intelligence, Applicable intelligence. Since the instructor was the only person for solving the problems and final replying person to questions

and absolute speaker, therefore it was possible to intrigue hearing intelligence of learner. Therefore this is the only method of teaching and learning. But in computer technology method it is possible benefit from hearing intelligence through audio/video CDs and visual/ imaginary intelligence, mental intelligence and applicable intelligence in the way of motivated education and finally providing an exact, permanent and reasonable learning as well.

CONCLUSION

Teaching occupies an honorable position in the society. ICT helps the teacher to update the new knowledge, skills to use the new digital tools and resources. By using and acquire the knowledge of ICT, student teacher will become effective teachers. ICT is one of the major factors for producing the rapid changes in our society. It can change the nature of education and roles of students and teacher in teaching learning process. Laptops, LCD projector, Desktop, EDUCOM, Smart classes, Memory sticks are becoming the common media for teacher education institutions. So we should use information & communication Technology in teaching to create a bright future of students.

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9

NEW APPROACHES IN LEARNING: E-LEARNING, M-LEARNING AND U-LEARNING

*Ms. Amrinderjit Kaur**

In Present Scenario E-Learning and M-Learning is one of the most imperative aspects of learning process which has enormous implications in the present education system. M-Learning has grown from minor research interest to set significant projects in school and in higher education. This paper also describes a new learning pattern known as ubiquitous learning or U-Learning. Instead of that, the paper also aims at providing information related to U-Leaning. Finally some of the U-Learning applications are explained to further enhance the accepting of U-Learning model.

Key Words: *E-Learning, M- learning, U-learning.*

INTRODUCTION

Arrival of computer and internet in the field of education has changed the procedures and pattern of learning. Now learning patterns knocks at the door of the students. Today anyone can learn from anywhere, anytime. Latest information is available at low cost. New technology term replaced old ones such as- Banking in to e-banking, Commerce in to e-commerce, Education into e-education and so on.

NOT ONLY CAN MEANING OF E -LEARNING.

E-learning refers to a learning system that we can obtain through the internet using an electronic device. It refers to the use of internet knowledge to convey and enhance knowledge and skills. In other words, we can say that the use of technologies to create, distribute and deliver valuable data.

"Any form of learning that utilizes a network for delivery and interaction. The learning could take place individually or as a part of class".

E-learning has a close relationship of IT Technology such as Computer networks, multimedia technology etc.

Thus the term e-learning can be summarized in a particular statement deliverance of teaching or any learning via any electronic means.

CHARACTERISTICS OF E-LEARNING

- Different multimedia assets are available.

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- Different ways of delivering the context.
- Self-study and collaborative learning.
- Courses are accessible any time, from any location.
- Interaction with teachers and students done on- line.

OBJECTIVES OF E-LEARNING

- Help you define your E-learning course'
- Tell the learner exactly what to expect.
- Be in line with educational philosophy.

BENEFITS OF E-LEARNING

- Lectures can be taken any number of times.
- Quick delivery of lesson.
- Reduced costs.
- Consistency.
- Effectiveness.

ADVANTAGES OF E-LEARNING

- You are able to link the various resources in several varying formats.
- It is very efficient way of delivering course online.
- Everyone who are part time students or working full time, can take advantage of e-learning.
- E-learning promotes active and independent learning.
- It is very convenient and flexible option, you do not have to depend on anyone for anything.
- By replace book and notes. M- Learning means learning anywhere with no need to physically connect. Mobile learning is also clear as "learning across multiple contexts, through social communications you train yourself on a day to day basis, but also on weekends or whenever you have the free time to.
- Through discussion boards and charts, you are able to cooperate with each person online and also clear your doubts.
- The video instruction that are provided for audio and video learning can be rewound and seen and heard again and again if you do not understand the topic initial instance around.

DISADVANTAGES OF E-LEARNING

- Most of the online assessments are limited to question that are only objective in nature.
- There is also the problem of the extent of security of online learning programs.
- The validity of a particular students work is also a problem as online just above anyone can do a project rather than actual student itself.
- The assessments that are computers marked generally have a tendency of being only knowledge-based and not necessarily practicality based.

MEANING OF M-LEARNING

M-Learning is the idea that a student can learn from any place at any time using portable learning device. M–Learning means Mobile learning. Mobile learning is any kind of learning interaction

that is delivered by mobile technology and accessed by learner at a time and in location of their choosing. M-learning also bring strong portability, using personal electronic devices."M-learning is seen as away to provide or to obtain education content using PDAs, Smartphone's, tablets and other electronic devices. Mobile learning is flexible education via internet or using personal mobile device.

Mobile learning is defined as the provision of education and training on mobile device. Such as Personal Digital Assistants (PDAS).

Types of M-Learning: The main types of mobile devices for m-learning used in education system are Note book computers, Tablet PC, Smart Phones, Wireless Application Protocol, and Bluetooth.

OBJECTIVES

- To teach the students the meaning of Mobile learning.
- To know the advantages of using Mobile learning.
- To know the challenges involved in using Mobile learning.
- To understand the concept of Mobile learning.

BENEFITS OF MOBILE LEARNING

- Mobile learning allows for flexibility by eliminating the need for learning to happen at a exacting time and place. Learner has an added benefit of accessing the content wherever and at any time they want. Mobile learning seamlessly integrates learning into daily basis of the learner, which results in the successful course achievement.
- One of the widely known advantages of mobile learning is personalization. The tailor made courses promote a higher rate of engagement and motivation for learners.
- Mobile learning is accessible at anytime, anyplace helps learner stay on track with training.
- When you adopt mobile learning in a digital training strategy, there is unique benefit of 24*7 availability.
- Information is more readily accessible when needed for on the job training. This helps in avoiding cognitive overload and increases learning

ADVANTAGES OF M-LEARNING

- It's possible to lay in bed and watch a lecture or complete a survey whenever you want.
- Children are motivated to learn when they can use tablets or other mobile devices.
- Employees also feel more motivated to learn something new or to take a training if they can take their learning materials everywhere with them.
- You can add videos audio files and images with mobile learning. Videos make it possible to make learning more interesting.
- While one learner might be in New York and the other in Canada, it's still possible to view the same content and take same test. This is the one of the main profit of mobile learning.

DISADVANTAGE OF M-LEARNING

- Using mobile devices for e-learning could be issue if your user does not have internet connection.
- Your are good to go with any modern device with a screen and a internet connection.
- Mobile device can be a great distraction for participants.

- Children like learning on tablets, but gaming on tablets seems to be more fun.
- As a teacher you are not always able to control what your pupils are doing on their tablets.
- For adults, mobile learning can also be interruption if your users get constantly interrupted with text messages and notification.

U-LEARNING AS LEARNING STRATEGY

In e-learning, learning is restricted to single desk while in u- learning, it is very much flexible. U-Learning is 24*7 type learning. So, now I will explain Ubiquitous Computing or U computing which is mixture of e learning and m- learning. The phrase U-learning was first coined by the late Mark Weiser.

MEANING OF U-LEARNING

U-Learning g can be defined as an on a daily basis learning environment that is supported by mobile and computers and wireless networks in our daily life. It is considered as new hype in the information and communication world. U –Learning means "anywhere anytime learning". It is equally to some form of simple mobile learning. It is also defined as an all day learning environment supported by technology. "The development of u learning computing has been accelerate by the step up of wireless, telecommunication capabilities open network, continued enlarge in computing power, enhanced battery technology and flexible software architectures".

There are much finest examples of U-learning system. Now, U learning environments can be set up with the help of Educationists& software / hardware engineers. Usually, it is linked with large number of small electronic devices(small computers) which have computation and communication capability such as smart mobile phones, contactless smart cards, sensor network nodes, Radio frequency recognition etc which are being used in everyday life.

U-learning is comparable to some form of simple mobile learning. Example that information environments can be accessed in various contexts and situations.

The view of "U-LEARNING= E-LEARNING + M- LEARNING", formulated from the integrated of mobile learning in to e-learning environments to form u-learning surroundings.

Whereas U-learning can apply to organization and individuals, I will focus on individual here, Furthermore, it makes sense to differentiate between willing and unwilling learning as well as active and passive initiation of learning. There are four scenarios:

- Willing and active learning.
- Willing but passive learning.
- Unwilling but active learning.
- Unwilling and passive learning.

FEATURES OF U-LEARNING

- Based on the environment situation. It provides the right information at the right time in right way.
- System accepts the requirements of the platform that is being used by the learner.
- System is independent of change in a network while the user is in a motion.
- System continuously senses the learner's location and its surrounding and stores the information into the database

U-LEARNING IMPLICATIONS:

- Shift the classroom from a customary to non-traditional context.
- Prepare and encourage students to become lifelong learners.
- Prepare students for "Real Life". New technology has become a part of our lives, and students need to learn how to use these technologies in order to prepare for their future careers.

EXISTING CHARACTERISTICS OF U- LEARNING:

- URGENCY OF LEARNING NEED: Mobile computing is used when there is something that is urgent for the learner.
- INITIATIVE OF KNOWLEDGE ACQUISITION: Information provided by the wireless applications is based on the learner's requests. Therefore, learning becomes more self directed.
- MOBILITY OF LEARNING SETTING: Wireless technology makes it possible for learning to occur anytime and anywhere.
- INTERACTIVITY OF LEARNING PROCESS: With wireless computing, the communication is efficient and effective. Students can interact with peers, friends, instructors or materials through different media like audio, video, image or text defining the term u learning.

NEW CHARACTERISTICS OF U-LEARNING

- PERMANENCY: Learners never lose their work unless it is purposefully deleted. In addition all the learning processes are recorded continuously every day.
- ACCESSIBILITY: Learners have access to their documents, data or videos from anywhere. That information is provided based on their request. Therefore, the learning involved is self- directed.
- INTERACTIVITY: Learners can interact with experts, teachers, or peers in the form of synchronies communication. Hence, the experts are more reachable and the knowledge becomes more available.
- IMMEDIACY: Wherever learners are, they can get information immediately. Thus learner can solve problems quickly. Otherwise, the learner can record the questions and look for the answer later.
- SITUATING OF INSTRUCTIONAL ACTIVITIES: The learner could be entrenched in our daily life. The problems encountered as well as the facts required are all presented in their natural forms. This helps learner notice the features of problem situations that make particular actions applicable.
- ADAPTABILITY: Learners can get the right information at the accurate place with the exact way.
- CONTEXT AWARENESS: The surroundings can adapt to the learners real condition to provide sufficient information for the learners.

CHALLENGES TO M-LEARNING:

- Limited content due to less memory.

- Limited battery life.
- Changing network coverage during motion.
- Issue of applications support due to different platforms.
- Only for personal use.
- Limited bandwidth hence limited access.

CONCLUSION

Although it is true that all the approaches of learning i.e. E, M, U Learning can move up the level of educational growth. It can be very useful for all the levels of education and as well as teacher education department also. However, E, U & M learning encourage both teachers and students to take personal responsibility for their learning. The current trend in E-learning sector is screen casting. These will also bring a considerable change in the method of spreading knowledge to improve the quality in teacher education and hence will make teachers of global standards. It is an innovation educational approaches which provide learning opportunities to the students.

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IMPACT OF ICT IN RURAL DEVELOPMENT : CHALLENGES AND PERSPECTIVES

*Mohit Kumar Sharma**

This paper a plan to build up a plausible and maintainable ICT Information Center against the issues of rural areas in India. Still the ICT application advancement is moderately delayed in the Rural Development. Internet is an incredible asset of ICT, which has noteworthy change everywhere throughout the nation. From most recent two decades, different e-administration applications are begun by the administration improvement in provincial regions. With the assistance of ICT, handling cost can be diminished, simple to accomplish, increment straightforwardness and decrease the process duration to arrive at the taxpayer supported organizations for provincial improvement. It is a fantastic undertaking to build up ICT in country territories.

Keywords: *ICT, Education, Agriculture, Health, E-governance*

INTRODUCTION

India is a nation of villages and to improve the general advancement of more vulnerable segment of rural areas. Information and Communication Technology (ICT) plays an important role in many prospects of rural development. Information and communication technologies (ICT) have become commonplace entities in all aspects of life. Over the previous twenty years the utilization of ICT has generally changed the practices and methods of about all types of attempt inside business and administration. ICT permits individuals to get to the data anyplace on the planet. The advantages of ICT are quickly developing and become a spine for the improvement of rustic regions in India. ICT is improved step by step and are being utilized by the legislatures in each office to convey its administrations. ICT applications (like E-Chaupal, Kisan Call Centre, National Knowledge Network (NKN), E-Post, E-Learning, E-Seva, Akashya etc.) are run by the government to reach the facilities door-to-door [1].

ICT is to empower the e-administration through remote correspondence and interlinked with different hubs. It can likewise assist us with running the different administrations of the legislature. It is utilized to convey the administrations of government to the town individuals. The ICT applications offer the administrations of government offices to the residents to benefit the offices at their town. Different pilot ventures are begun by the legislature to draw in the individuals and offer simple

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access the administrations and improved preparing.

Rural areas of the creating nations are still today far away from the ICT. ICT assumed a significant job in financial development, network and social improvement and country advancement of the creating nations. To get to the ICT offices; there is a major hole among rustic and urban territories. This hole is more extensive in the remote rustic territories and underestimated individuals. Information and Communication Technology (ICT) gives a wide scope of useful assets to upgrade both the information and correspondence measurements of advancement. There are explicit territories in which ICT potential could be handled to lessen the destitution, opportunity, strengthening and security. ICT make opportunity makes markets work better for poor people and extends destitute individuals' advantages. Strengthening makes government organizations work better for destitute individuals and evacuates social obstructions. The ICT foundation can be served through Internet, versatile, radio and TV to empower the conveyance of training to disengaged provincial zones and data innovation.

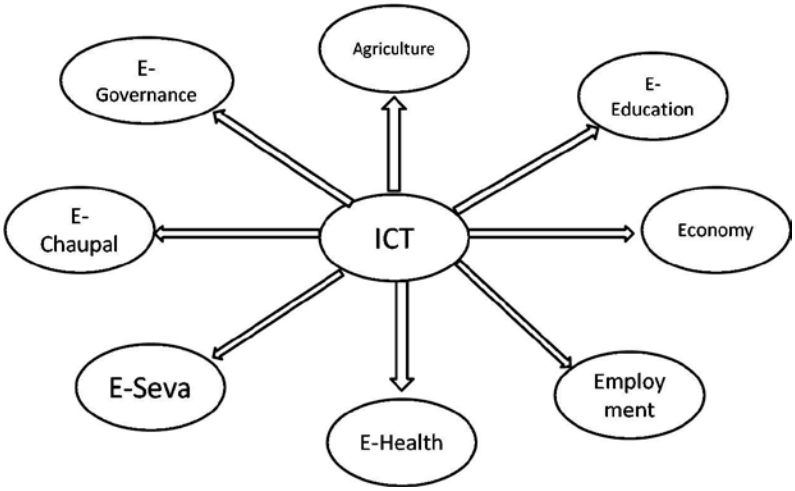

Fig. 1: Significance of ICT in Rural Development

One of the most helpful devices of ICT is the Internet, which has been a striking change in creating nation. ICT passageways can go about as vehicles for propelling different administrations for engaging provincial networks through systems administration and sharing of data and information. Services may include informal ICT-based training and specific applications such as e-Seva, e-Learning, e-Health, e-Business and e-Government. To expand availability and partaking of more fragile area of the general public and destitute individuals are worked. To support more vulnerable segment of the general public, people with inabilities, jobless, youth, old and underestimated gatherings of rustic regions for the most extreme use of ICT offices [2].

ICT IN MARGINALIZED COMMUNITIES

To make ICT work for advancement, it needs to reach at all levels to support poor and marginalized people as indicated by their needs and necessities. It is anything but difficult to get to, reasonable, advertise driven framework and multi-partner all around. The general accessibility of ICT can add to diminish the hole among served and underserved individuals. It very well may be

valuable to engage people to become dynamic members in their social orders. Making mindfulness about the advantages and openings offered by ICTs among minimized, limit working in ICT, setting up ventures or activities planned for expanding underestimated access and use of ICTs, urging to accepting up ICT open doors. Organization of ICT in minimized networks require more than ICT gear gifts or the subsidizing of particular projects of the inside. ICTs answers for neediness will be intended to help poor people, to include diverse social gatherings and position them as important individuals from the networks.

ICT IN AGRICULTURE

ICT play a significant role in the development of productivity and quality of cultivation. Farmers face many problems due to awareness, unskilled in farming and innovations in technology used in crops. Government of India started KISAN channel and KISAN Call Centre to provide facilities to farmers to get any information regarding farming, animal husbandry, quality of soils, crops care, fertilizers, seed sourcing, weather forecast, warehouse, government subside and current market requirements. A huge majority of people lives in rural areas and they are directly or indirectly depend on agriculture [3].

ICT IN EDUCATION

ICT can play an important role in remote area for education. Government granted for developments to instructors to receive ICT in educating learning. Government likewise began different network systems which are savvy, replicable, financially for giving advantages to rustic territories. Use of ICT in education is to reach the quality education to students. Government also started Rashtriya Madhyamik Shikcha Abhiyan (RMSA) in schools launched in 2004 revised in 2010 to provide opportunities to poor students. To promote computer enabled teaching and learning, usage of ICT for primary schools in remote areas. Through e-Learning, government attempted to give the separation learning, video-addresses, e-substance, books and so on.

ICT IN ECONOMIC DEVELOPMENT

ICT provide an opportunity for rural areas to address the digital device and reduce poverty while registering economic growth. Government start some energetic ICT part that huge contributes towards villages. ICT sector should be developed in collaborate with public and private partnership (PPP). Start and improved ICTs framework for all divisions of the economy and empower full use of existing correspondences to use the asset.

ICT IN EMPLOYMENT

Individuals don't know about the present occupations, on the grounds that regularly don't approach the data. By utilizing ICT, is to offer online types of job placement through electronic labor supply in public employment services. Through ICT, government can start information centre in villages to provide information and generate employment in rural areas.

ICT IN E-GOVERNANCE

It can also facilitate the e-Government services to reach to the rural areas. Various government of state already started its own Wide Area Network (WAN), which is used as a backbone for e-governance [4]. All the districts are connected through intranet and provide the services on high

speed network by using National Knowledge Network (NKN). ICT provide on-line convenient access of government information and delivery of public services. Initiate on-line projects that provide information on governance at and across all levels of society.

ICT IN E-HEALTH

ICT can likewise be utilized in health diagnosis and treatment. The greater part of the individuals is not ready to profit the wellbeing offices in country zones. To conveying care with ICTs offices, human services experts and therapeutic establishments to treat the basic restorative prerequisite in rural areas particularly for the individuals who remain in remote areas and the individuals who can't benefit medicinal administrations [5].

CONCLUSION

ICT infrastructure helps to provide facilities of development door-to-door in rural areas. Most of the developing countries, have limited capacities and resources to responds to the effects of natural hazards, landslides, floods, climate change to the rural social systems. The use of ICT can strengthen the social relations, education, increase participation of people, aware about the new technologies, raising productivity at the local level to increase the employment. Proper utilization of ICTs will lead among others, to increase knowledge, provide information and quality of goods and services.

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11

ICT AS A CHANGE AGENT FOR EDUCATION

*Dr. Anita Arora**

ICT has become an integral part of today's teaching learning process. As the world is moving rapidly into digital media and information sector, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century. The use of ICT in pedagogy has set out certain benchmarks for the integration of ICT into the learning process as the way to bring about improvements in the quality of education in specific social frameworks. In our time ICT is transforming classrooms by bringing in new curriculum based on real world problems, projects, providing tools for enhancing learning, providing teachers and students more facilities and opportunities for feedback. ICT also helps teachers, students and parents to come together. Continuous and Comprehensive Evaluation (CCE) helps students as well as teachers to use more technology for making teaching learning more attractive for the betterment of our future generation. The objective of the present paper is to focus on information and communication technology (ICT) as a potent tool for delivering quality teaching-learning process in the classroom. It highlights the impacts and benefits of ICT in education, its limitations and challenges to education systems.

Key Words: *ICT, Teaching and Learning, Impact and Benefits, Challenges, Limitations*

INTRODUCTION

ICT stands for Information and Communication Technologies. ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters. It is regarded as the combination of 'Informatics technology' with other related technology, specifically communication technology (UNESCO, 2002). ICT is used as an umbrella term that includes any communication device or application which encompasses radio, television, cellular phones, computers, laptops, hardware and software, satellite systems, internet and the various applications associated such as teleconferencing, videoconferencing, virtual laboratories, digital libraries etc. In general, ICT is defined as the integration of computers, internet and audio-visual system which enable users to access, store and transmit information in a digital form. It consists of informatics technology with other related technologies, specifically communication technology. The purpose of ICT according to Shavinina (2001), "consists just in the development of human mental resources which allow people to successfully apply the existing knowledge and produce new knowledge."

ICT has a major impact in higher education, both at the teaching as well as learning process.

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Integration of Information, Communication, and Technology (ICT) in education refers to the use of computer based communication that incorporates into daily classroom instructional process. . ICT in education is a medium that uses information and communication technology to support enhance and optimize the knowledge. This is due to the capability of ICT in providing dynamic and proactive teaching-learning environment (Arnseth & Hatlevik, 2012). While, the aim of ICT integration is to improve and increase the quality, accessibility and cost-efficiency of the delivery of instruction to students, it also refers to benefits from networking the learning communities to face the challenges of current globalization (Albirini, 2006). Process of adoption of ICT is not a single step, but it is ongoing and continuous steps that fully support teaching and learning and information resources (Young, 2003). A great deal of research has proven the benefits to the quality of education (Al-Ansari, 2006). ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Yusuf, 2005). The use of information and communication technologies in the educative process has been divided into two broad categories: ICTs for Education and ICTs in Education. ICTs for education refers to the development of information and communications technology specifically for teaching/ learning purposes, while the ICTs in education involves the adoption of general components of information and communication technologies in the teaching learning process.

ICT AS A CHANGE AGENT IN LEARNING PROCESS

The use of ICT has brought about immense improvements in the ways of working of teachers as well as the other members of the educational institutions. The approach of ICT within the teaching-learning processes and instructional strategies has a positive effect upon the system of education. In other words, the members of the educational institutions are able to carry out their job duties in a well-ordered and manageable manner and feel pleasurable and contented. The use of ICT promotes a favourable learning environment. Within the favourable learning environment, the students and teachers are able to render a satisfactory participation and work in collaboration and integration with each other in the achievement of academic goals. The use of multimedia makes the learning environment within the classroom lively and suitable to the needs and requirements of the students (Kaur, 2015).

ICTs are a potentially powerful tool for extending educational opportunities. The use of ICT is making major differences in the learning of students and teaching approaches. ICT has undoubtedly increased the amount of flexibility in the delivery of education so that learners can access anything, anytime and from anywhere. It has also influenced the way students are being taught in the classroom and how their method of learning. Several studies reveal that students using ICT facilities mostly show higher learning gains than those who do not use, actually it acts as an assisting tool. It provides quicker and easier access to more extensive and current information. ICT can also be used to do complex tasks as it provides researchers with a steady avenue for the dissemination of research reports and findings (Adeoye et al., 2013). Role of technology in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy, if ICT is properly used; it holds great promise to improve teaching and learning.

Hermans, Tondeur, Van-Braak, and Valcke (2008) have identified three main stages for ICT to be highly valued and regarded by the teachers; integration, enhancement and complementary.

- ***Integration approach*** is about implementing right use of ICT in particular subject area that involved complex concepts and skills to improve student's achievement and attainment. Besides, the review of curriculum is also needed so that only related ICT resources and appropriate software will be installed for the main aims and objectives of curriculum to be achieved.
- ***Enhancement approach*** is about using ICT to give great emphasis on the topic introduced. For instance, Microsoft PowerPoint can be used to present the topic in a very innovative and creative way that will lead into discussion and exchanging ideas and thoughts.
- ***Complementary approach*** is when the ICT is used to aid and support the student's learning. This approach allow students to be more organized and efficient in which they can take obtain the notes from computer, submit their works by email from home as long as they meet the deadline and looking for information from various sources provided online to fulfil the task given to them (Hermans et al., 2008).

IMPACT AND BENEFITS

Today ICT is changing, impacting and benefitting teaching and learning in various ways:

- ICT increases the flexibility of delivery of education so that learners can access knowledge anytime and from anywhere. It can influence the way students are taught and how they learn as now the processes are learner driven and not by teachers. This in turn would better prepare the learners for lifelong learning as well as to improve the quality of learning. In concert with geographical flexibility, technology-facilitated educational programs also remove many of the temporal constraints that face learners with special needs (Moore & Kearsley, 1996).
- By using technology in their learning, the students can be active learners. They will be aware of what information they need, why they need it, and how they can get that information. (Huffaker, 2003).
- By having access to internet in their school the students will not totally depend on the teachers. They can explore information available in the internet, by using this learning system, the students also becomes self-managed in their learning process. This self-managed learning allows the students to be self-motivated and self-directed learners who will be able to readily, efficiently, and quickly respond to the quick change of information (Hodas, 1993).
- ICT also can provide a way for dynamic and collaborative learning. Besides dynamic learning, ICT allows all the human components of schools; the principals, administrators, teachers, IT coordinators, and the students to get involved in the collaborative learning and forming learning communities (Moodiel, 2000).
- ICT can lead us to meta-cognitive learning. As noted by (Monteith, 2002) by using ICT in our learning we can learn how to learn rather than learn a particular skill. Paris and Winograd (2004) reported that there are two important elements within meta-cognitive learning. Those are self-appraisal and self-management. Having self-appraisal, the learners can reflect and evaluate their own knowledge competency and development. Having self-management, the learners can plan, select, and use learning strategies which they prefer to gain knowledge.

CHALLENGES AND BARRIERS

Implementing ICT in education has many benefits and difficulties. Each educational institution has its own barriers depending on its contextual factors. Generally the difficulties can be classified into four kinds of barriers. Those are technological barriers, teachers' refusal, students' refusal, and poor schools' technological system

The act of integrating the use of ICT into teaching and learning is a complex process and one may encounter a number of difficulties. Different categories have been used by researchers and educators to classify the problems in use of ICT in educational institutions and several studies have divided the problems into extrinsic and intrinsic categories. Ertmer (1999) referred to extrinsic problems as first-order and cited access, time, support, resources and training and intrinsic problems as second-order and cited attitude, beliefs, practices and resistance. Whereas, Al-Alwani (2005) saw extrinsic problems to institutions rather than individuals and intrinsic problems pertains to teachers, administrators and individuals.

Another perspective presents the obstacles in the use of ICT in educational institutions as pertaining to material and non-material conditions (Pelgrum, 2001). The material conditions may be the insufficient number of computers and copies of software. The non-material obstacles include teachers insufficient ICT knowledge and skills, the difficulty of integrating the use of ICT in instruction, and insufficient teacher time. However, since the purpose of the paper is to find the present and future problems in use of ICT.

CONCLUSION

In summary, the adoption and use of ICTs in education have a positive impact on teaching, learning, and research. In the past twenty five years, the use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavor within the all forms of educational institutions for providing quality education. ICT can affect the delivery of education and enable wider access to the same. Researches all over the globe have proved that ICT can improve student learning and better teaching method. Accessing of course material through remote devices, Online academic management systems, Flipped classroom, digital repositories for lecture course materials, library, computers, projector, audio players are the technology that education sector uses. The rising number of Massive Open Online Courses MOOCs are in huge demands for learning facilities beyond classroom. A wider availability of best practices and best course material in education, which can be shared by means of ICT, can foster better teaching and improved academic achievement of students.

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12

IMPACT OF ICT ON TEACHING, SOCIETY AND ECONOMY

*Sukhwinder Kaur**

ICT stands for Information Communications Technology.ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums. In this paper an attempt has been made to find the uses of ICT in all parts of the society and economy. ICTs all positive and adverse effects on teaching, society and economy are discussed in detail. The shortcomings in the promotion of ICT are also discussed in the paper. In the end suggestions for the improvement in ICT system are also given.

ICT is the central excel of the current development process of knowledge based economy. ICT is considered an important instrument in enhancing economic development in almost every sector if the economy. First of all it is necessary to discuss what ICT is?

ICT mean "Information and Communication Technologies." ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology and it includes the wireless networks, Internet, cell phones, and other communication mediums. From the recent past information and communication technologies have provided so many communication capabilities. For example, people can contact with others in different countries using technologies such as instant messaging, video call and video-conferencing. Social networking websites like Facebook and WhatsApp, Insta, Skype and Twitter allow users from all over the world to remain in contact and communicate on a regular basis.

Modern information and communication technologies have created a global village, in which people can create contacts with others across the world. For this reason, ICT is often studied in the context of how modern communication technologies affect society. ICT is sometimes used in place of IT (for information technology); however, ICT is generally used to represent a big list of all components related to computer and digital technologies than IT.

The list of ICT components is continues to grow. Some components, such as computers and telephones, have existed for many decades. Others, such as smartphones, digital TVs and robots enters in recent past.ICT commonly means more than its list of components. It also encompasses the application of all those various components. It's here that the real potential, power and danger of ICT can be found.

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OBJECTIVES OF THE STUDY

In this paper an attempt has been made to study ICT in detail to achieve the specific objectives.

The objectives of the study are :-

- To study ICT in detail.
- To study the benefits of ICT in teaching.
- To study adverse effects of ICT on teaching.
- To study Impact of ICT on different sphere's of economy and Society.
- To study adverse effects of ICT on society and economy.
- To suggest the measures to improve ICT.

ICT IN TEACHING

Information and Communication Technology in education is the method of education that use information and communications technology to deliver the information. We can even improve the quality of education with the help of efficient technology in an institution. This will open up more and more opportunities for the teachers and students. With the use of ICT and power point presentation system in education delivery of information become much smoother and easier.

OBJECTIVES OF IC IN TEACHING

- To enable every students to become Digitally Literate, as this is the need of the current time especially when Digital India movement is started by our Prime Minister.
- To train the school teachers in effective delivery of education by using IT method.
- To facilitate the growth of digital economy
- To create job opportunities for students and computer teachers.
- To develop student & teacher competence as per NCERT and MHRD Guidelines.

Positive Impact of ICT on Teaching

- Improvement in the access of education through on-line lectures and distance mode of education.
- Now knowledge is in our pocket or even on the fingertips with the improvement of ICT.
- With the introduction of ICT's teaching and learning processes from being teacher-centered to student-centered.
- Use of ICT support, optimise and increase the delivery of information.

Negative Impact of ICT on Teaching-

- Students become dependent on ICT and not learn by hand. Even for simple calculation they use mobile calculator.
- Most of the times students use unnecessary websites.
- Sometimes teachers only use PPT and avoid black board.

Impact of ICT on Different Parts of the Economy and Society

Impact on ICT on Human Capital: Human capital is an asset consisting of the knowledge and skills held by a person that can be used by an organization to achieve its goals. Human capital is important because some level of human knowledge and skills is necessary in order for an organization to achieve anything. ICT has drastically changed how people work, communicate, learn and live. By

focusing on using technology to continuously improve the quality of the work.

Impact on Economic Development: ICT's importance to economic development and business growth has been tremendous.ICT can influence economic growth through several methods like the production of goods and services within the ICT sector directly contributes to the creation of value-added goods and services in the economy. ICT encompasses a huge body of knowledge and tools that ease the use of economic resources as a way to produce goods and services efficiently and innovatively. Technological progress is essential to economic growth and development, and the more advanced the technology available, the more quickly the local and global economy can improve.

Impact on Business: Businesses can use ICT systems to benefit from improvements such as reducing costs, increasing efficiency, improving decision-making and increasing your competitiveness in the marketplace. The role of ICT in business activity can be explained with the help of two words : production and consumption. Firms can produce ICT hardware and software or benefit from the consumption of ICT goods.

Impact on Innovation: Innovation means a new thought, creative ideas, new imaginations in form of device or method. Innovation is often also viewed as the application of better solutions that meet new requirements or actually existing market needs. During the past few years, the role of ICT as a key driver and enabler of innovation has been widely recognized. The advent and development of ICT contributes in value creation process. The Internet facility provides new ways of reaching out to customers and competing for market share.

Impact on Labour Market: The displacement of jobs by machines is the major challenge created by ICT in the context of the labour market. Apart from this the ICT sector is, and is expected to remain, one of the largest employers. India is the third-largest start-up hub in the world with over 9200 technology start-ups in 2017-18. In India ICT sector's employment prospects, both in the near and long term are expected to be broadly positive and encouraging for future.

Impact on Time Management: ICT can save the time it takes to produce a good or deliver a service, contributing to the overall profits of a business. In teaching also with the use of ICT time can be saved because its much quicker to move information around. Video conferencing saves money on flights and accommodation.

Impact on Work Efficiency: Information technology can contribute to the efficiency of a business's output rate, allowing for larger quantities of products to be moved or of services to be rendered. Technology has lead to an increase in the division of labor and specialization of jobs within a business, further contributing to the efficiency with which a business is able to run.

Impact on Trade: Information technology is the single most important element in the success and growth of international trade and job market growth, allowing businesses to share information and conduct trade in less time than the blink of an eye.

Impact on Emergence of New Enterprises: So many new public services have become available online and through mobile phones. The transition to cloud computing is one of the key trends for modernization. Therefore, a major support to growth needs to come from a sustainable recovery in private consumption and investment.

Impact in Women Empowerment: Women's empowerment is the way or a social action in which women elaborate and recreate what it is to be in a circumstance that they previously were denied. Women are an important section of our society. Education as means of empowerment of women can bring about a positive attitudinal change. It is therefore, crucial for the socio- economic

and political progress of India. It has been argued that employment in ICT sector is gender neutral. As the ICT reduces the need for physical labour and creates white collar jobs, the women with better skills are more likely to find better employment prospects.

Impacts on Society: The most dramatic influence of technology has been felt on society. Technological development affects life of every human being. . Even the language we use is changing. New terms continue to emerge. It is correctly said that words are the budges of social change. When our language changes, behaviour will not be far behind. Technological advancement tends to remove social differences, the differences between sexes and between parents and children.

Negative Impacts of ICT

No doubt ICT and new technologies bring enormous changes and these changes change the society, economy, culture and human capital at a very large extent in a positive manner. But there are some adverse effects also, as

- In teaching there is no direct connection among teachers and students but this is necessary for personality development and enhancement of moral values.
- No doubt ICT creates so many employment opportunities especially for woman but job security is a big issue and a matter of concern.
- ICT influenced our culture and moral values at a large extent. Our young generation follow western culture. I didn't mean to say that western culture is not good but it hurt our own values and own cultural. Especially our new generation may not following any culture today.
- Digital security is also a big concern. Information is not safe from hackers and they can misuse this information.
- In Ancient times we were known for our mathematics. But today we are unable even to add and subtract, we become slaves of the technology.
- Although today information is at our fingerprints and easily available but its authenticity is a big issue. It is not always reliable.
- A simple Virus in the computer system can waste our labour and as we discuss earlier we are slaves of technology, nothing can save us.

Requirements for ICT Development

Though ICT also effects us adversely yet its benefits and achievement cannot be ignored. So efforts are required to be made for it's development, especially:-

- Appropriate telecommunication infrastructure.
- Reduction in cost of ICT equipments.
- A special policy to control digital hackers.

CONCLUSION

In short, we can conclude that ICT's impact can be seen almost everywhere. At this stage we cannot avoid ICT from our society and economy, so special efforts are required for the development and promotion of ICT. More and more telecommunication infrastructure is required for ICT development.

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13

ROLE OF ICT ON ENHANCING QUALITY EDUCATION

*Baljinder Kaur**

Quality education depends on the development of information technology in several provision such as enlarging the motivation of learner, enrichment of basic skills and increasing teacher training in technology. Information communication technology serving as curriculum/subject transformation tool, It used properly to create a environment with learner centered. Information and communication technologies are used by the teachers to instruct the students to know and access the new pedagogy. Information and Communication Technologies (ICTs) is increasingly becoming indispensable part of the education system. It has changed many aspects of the lives. Those changes have leads to educational institutions, administrators, teachers to rethink their roles, teaching and vision for the future. ICT has witnessed newest challenges for quality education among learners. In the past twenty five years, the use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavor within the all forms of educational institutions for providing quality education. ICT has become commonplace entities in all aspects of life. Especially ICT have a greater place in the field of Education in the forthcoming years. Therefore, it is adoptable for every situation in the classroom environment to creating the motivation among the learners. In considering the above merits the present article represents importance of ICT reserve the major place in improving the educational system such as increasing motivation among the learners, obtaining attention among the learner and creating in depth understanding in their subject. In considering the above importance ICT merged as an important part in the field of education at present and near features.

Keywords: *Information and communication technologies, teaching and learning processes, educational innovation, quality.*

INTRODUCTION

The education has vital role in building the society. Education determines standard of society. The quality education is basic need of the society. In recent years, several studies and reports have highlighted the opportunities and the potential benefits of information and communication technologies for improving the quality of education. The quality education helps to empowering the nation in all aspects by providing new thoughts, the ways of implementation of various teaching &learning methodologies .This research focuses on the need to develop appropriate strategies to face this new teaching role and in addition to the students' role when integrating ICT in the teaching and learning processes. Information and Communications Technology (ICT) can impact student learning when

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teachers are digitally literate and understand how to integrate it into curriculum. When teachers are digitally literate and trained to use ICT, these approaches can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings, and leave students better prepared to deal with ongoing technological change in society and the workplace.

What is ICT?

ICT stands for "Information Communication Technologies.ICT is concerned with the storage, retrieval, manipulation, transmission or receipt of digital data. It is difficult to define ICT because technology is changing so fast. ICT has also become integral part of teaching-learning interaction, through such approaches as replacing chalkboards with digital whiteboards, using students' own smart phones or other devices for learning during class time as well as at their homes also for more interactive exercises. ICT considers all the uses of digital technology that already exists to help individuals, business and organization.

OBJECTIVES OF ICT IN EDUCATION

1. To improve the quality of education
2. To teach how the use of ICT is regulated in society and the implications of this for the individual.
3. To promote and facilitates the relationship between human and the environment.
4. To enhance lifelong learning.
5. To increase the variety of educational methods and services and literacy rate through distance education.
6. To promote the technology literacy among citizens.
7. To expand access at all levels of education.

ROLE AND BENEFITS OF ICT BASED EDUCATION

ICT is used as powerful tool for extending educational opportunities. Role of technology in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy, if ICT is properly used; it holds great promise to improve teaching and learning in addition to shaping work force opportunities. With countless online resources, technology can help improve teaching. Teachers can use different apps or trusted online resources to enhance the traditional ways of teaching and to keep students more engaged.The use of ICT is making major differences in the learning of students and teaching approaches. Several studies reveal that students using ICT facilities mostly show higher learning gains than those who do not use, actually it acts as an assisting tool. It provides quicker and easier access to more extensive and current information. Moreover, ICT a central force in economic and social shifts that has technology skill critical to future employment of today's student.Students who are engaged and interested in things they are studying, are expected to have a better knowledge retention. Students can practice collaboration skills by getting involved in different online activities. Technology provides great opportunities for making learning more effective for everyone with different needs. For example, students can learn at their own speed. Benefits of ICT are:

1. To promote and improve the digital culture in schools, colleges and universities.
2. To develop variety of educational services.
3. To provide access to wide range of up-to-date learning materials.

4. To promote equal opportunities to obtain education and information.
5. To enriches learning through a combination of audio, video, images, text and animation.
6. To act as an assisting tool for teaching and learning itself
7. To develop a system of collecting and disseminating educational information.
8. To develop interactive and collaborative teaching and learning methods
9. To promote technology literacy and support distance learning. ICT helps teachers to motivate students and develop interest in learning.
10. To use Web-based LMS tools to connect students, educators, scholars and researchers, and education personal together.

ICT AND ITS INFLUENCE ON QUALITY EDUCATION

Quality education depends on the development of information technology in several provisions such as enlarging the motivation of learner, enrichment of basic skills increasing teacher training in technology. Information communication technology serving as curriculum/subject transformation tool, it used properly to create a environment with learner centered. Information communication technology instruments such as multimedia based soft ware and sound, colorful moving images to enhance motivation among students in learning process. It is the challenging task of the today teacher.ICT focuses on the role of teachers. ICT enables a teacher to reach out widely efficiently and effectively. It helps teachers and institutions to be more modem and dynamic. Teacher who can serve as a facilitator for the students who learning their subject through information communication technology and addition that the class teacher who will act as a guide for directing the students who use the electronic media in their curriculum .Information communication technologies are influencing all aspects of life, in which the impacts of ICT is significant is education. ICTs help expand access to education, motivate to learn, facilitates the acquisition of basic skills. Ultimately, the use of ICT will enhance the learning experiences of students. Also it helps them to think independently and communicate creatively.

LIMITATIONS OF ICT USE IN EDUCATION

ICT as a modern technology simplifies and facilitates human activities is not only advantageous in many respects, but also has many limitations. Limitations can be categorized as teacher related, student related, and technology related. Implementation of computers and the use of internet are expensive. Teacher's attitude towards use of these technologies is vital; they require experience to handle ICT. Teacher resistance and lack of enthusiasm to use ICT in education may also be another limitation. Because managing courses online is difficult. Misleading and misguiding information and risk of cyber attacks and hacks is always there. It generates greater distractions and high level of addiction among young generation. There is greater loss of time and lack of privacy while using technology.

FUTURE SCOPE

Information Technology (IT) offers a promising career to the students. It is growing tremendously with every passing year. The use of ICT becoming an important part of everyday work. ICT encompasses all those gadgets that deal with the processing of information for better and effective communication.

Information and communication technologies in education refer to teaching and learning the subject matter that enables understanding the functions and effective use of ICT. Through ICT, images can easily be used in teaching and improving the retentive memory of students. ICT has a promise to improve the quality of teaching and learning. The goal of computer aided education is to develop learning capacity of students and increase teaching productivity. In education, communication process takes place between teachers, students, management and administrative personnel which requires plenty of data to be stored for retrieval as and when required, to be disseminated or transmitted in the desired format.

By using ICT teachers can easily explain complex instructions and ensure students' comprehension. Modern technology like electronics and telecommunication provide the means to strengthen the voice of lecture.

Through ICT, teachers are able to create interactive classes and make the lessons more enjoyable, which could improve student attendance and concentration. The role of Information Technology is also well reflected in multi-national corporations, businesses that involve various types of works like management of data, inventory, customer relationship, Information Systems, etc. Other popular ideas relating to IT are Social media networking, Patient portals, Digital marketing, Mobile Applications, Website Applications, Online shopping Portals, Internet Banking.

Modern technology develops basic education services accessible to all sectors of society. Basic education must become a field which is free of all forms of exclusion and discrimination. These are the ways of achieving an education that is authentic, accessible to all without any discrimination.

CONCLUSION

The role of ICTs in the education is recurring and unavoidable. Information communication technologies are influencing all aspects of life, in which the impact of ICT is significant in education. Rapid changes in the technologies are indicating that the role of ICT in future will grow tremendously in the field of education .ICTs help expand access to education, motivate to learn, facilitates the acquisition of basic skills, and can transform the learning environment thus help improving the quality of education. By observing current activities and practices in the education, we can say the development of ICTs has strongly affected the methods of teaching and learning. ICT enables a teacher to reach out widely efficiently and effectively. It focuses on the role of teachers. In addition to classroom teaching, they will have other skills and responsibilities. Teachers will act as virtual guides for students by using electronic media. The use of ICT will enhance the learning experiences of students also. It helps them to think independently and communicate creatively for building successful careers and lives in the competitive world.

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14

सूचना एवं संचार प्रौद्योगिकी का शिक्षा में उपयोग

*नीलम तिवारी**

सूचना एवं संचार प्रौद्योगिकी में यह क्षमता है कि वह शिक्षा को आसानी से और तीव्र गति से प्रसारित कर सकती है और उस क्षमता का उपयोग हम शैक्षिक वातावरण को उन्नत करने में कर सकते हैं। सूचना तकनीकी के उपयोग से शिक्षण अधिगम सामग्री विद्यार्थियों के कहीं भी, कभी भी उपलब्ध हो सकती है। शिक्षा में सूचना एवं संचार प्रौद्योगिकी का उपयोग शिक्षा की प्रभावशीलता को बढ़ाते हुए अध्यापन और अध्ययन की गुणवता बढ़ाता है। विद्यालयों में सूचना एवं संचार प्रौद्योगिकी की शुरूआत के बाद के छात्रों को पारम्परिक कक्षा के वातावरण की तुलना में प्रौद्योगिकी वर्धित वातावरण में पढ़ना ज्यादा स्फूर्तिदायक और रूचिकर लगता है। यह लेख सूचना एवं संचार प्रौद्योगिकी का शिक्षा में उपयोग को केंन्द्रित कर रहा है। नवीनतम तकनीकें हमारे सीखने के तरीकों और शिक्षण प्रक्रिया में बदलाव ला रही है। सूचना एवं संचार प्रौद्योगिकी के उपयोगों को हम निम्नांकित बिदुंओं के माध्यम से समझ सकते हैं:

1. शैक्षिक संसाधनों एवं स्रोतों की बहुलता।
2. शैक्षणिक सूचनाओं की तत्काल उपलब्धता।
3. संम्पूर्ण समय सीखना।
4. समूह में सीखना।
5. दृश्य श्रव्य सामग्री का उपयोग।
6. अधिक दूरी पर भी सीखना सम्भव।
7. विशेष योग्य विद्यार्थियों के लिए बेहतर साधनों की उपलब्धता।
8. जनसंचार।

1. शैक्षिक संसाधनों एवं स्रोतों की बहुलता : सूचना तकनीकी कहीं भी आसान विभिन्न प्रकार की शिक्षण सामग्री की उपलब्धता को बढ़ावा देती है। शिक्षक एवं शिक्षार्थी दोनों ही इसका उपयोग शिक्षण अधिगम सामग्री को प्राप्त करने एवं इसका आदान प्रदान करते हैं। उदाहरण के लिए शिक्षक श्रव्य-दृश्य माध्यम से कम्प्यूटर एवं इंटरनेट का उपयोग करते हैं। यह कक्षा कक्ष की सीमाओं को समाप्त करता है क्यों कि विद्यार्थी कहीं भी किसी भी समय कक्षा कक्ष में भौतिक रूप से उपस्थित हुए बिना भी शिक्षण सामग्री को प्राप्त कर सकता है। शिक्षक गृहकार्य या प्रयोजना कार्य में भी ई-मेल या केम्पस शैक्षणिक फोरम का उपयोग कर सकता है।

2. शैक्षणिक सूचनाओं की तत्काल उपलब्धता : सूचना तकनीकी सूचनाओं के स्थानान्तरण एवं वितरण की गति को बढ़ा देती है। विद्यार्थी कम्प्यूटर या मोबाइल फोन एप्लिकेशन के माध्यम से शैक्षिक डाटा को आसानी से प्राप्त

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कर सकता है। वर्तमान में विद्यार्थी लाइब्रेरी मोबाइल एप्स के द्वारा किताबों के ई बुक्स रूप को उपयोग में लेते हैं जिनकों वे किसी भी समय और कहीं भी अपने मोबाइल के माध्यम से पढ़ सकते हैं। यह तकनीक विद्यार्थियों के समय का सदुपयोग करने हेतु प्रेरित करती है।

3. ज्ञान के निर्माण में प्रभावपूर्ण उपयोग : सूचना तकनीकी के साधनों ने ज्ञान निर्माण को लाभान्वित किया है। ज्ञान का निर्माण संचयन संचरन के लिए आई.सी.टी. के साधन उपयुक्त ज्ञानेद्रियों को ज्ञान का द्वार कहा जाता है। सूचना तकनीकी चक्षु एवं श्रवणेंद्रिय का उपयोग कर ज्ञान प्राप्त करने के बहु मूल्य अवसर मिलते हैं।

4. सम्पूर्ण समय सीखना : विद्यार्थी किसी भी समय शैक्षिक सामग्री प्राप्त कर सकता है, बढ़ सकता है तथा उपयोग कर सकता है। सूचना तकनीकी से ही आन लाइन शिक्षा सरल व सुग्राही सम्भव हो पाई है।

5. उत्तम अभिप्रेरणा स्रोत : बालक स्वभाव से ही क्रियाशील होते हैं। उन्हें वस्तुओं और प्रक्रियाओं को देखने-सुनने में रूचि होती है। सूचना तकनीकी की सहायता से पढ़ना पढ़ाना बच्चों की मूल प्रवृतिया स्वाभाविक रूचिया बुनियादी प्रेरणा स्रोतों तथा प्रयोजनों से मेल खाता है इसलिए सूचना तकनीकी शिक्षा में एक बहुत ही प्रभावपूर्ण स्रोत सिद्ध हो रहे हैं। आई. सी. टी. के साधनों से शिक्षार्थियों का ध्यान केंन्द्रित होता है। आई. टी. सी. के साधनों की सहायता से शिक्षार्थियों को स्वयं अध्ययन का अवसर प्राप्त होता है। इससे छात्र अभिप्रेरित होते हैं।

6. समूह में सीखना : सूचना तकनीकी विद्यार्थियों को समूह में सीखने में मदद करती है साथ ही शिक्षक भी इसके उचित उपयोग से विद्यार्थियों को समूह में पढ़ा सकते हैं अब सूचना तकनीकी का उपयोग करते हुए कई विद्यालय अकादमिक फोरम का गठन करते हैं जहां विद्यार्थी किसी भी विशिष्ट प्रकरण पर बिना किसी भय के चर्चा कर सकता है इस ऑनलाइन समूह चर्चा का एक फायदा यह भी है कि सभी सदस्यों का एक ही कक्षा और एक ही विद्यालय का होना अनिवार्य नहीं है जैसे जापान का विद्यार्थी यदि बीएचयू के अकादमिक समूह का सदस्य बनता है तो वह समान रूप से विभिन्न चर्चाओं में भाग ले सकता है तथा इस प्रकार से शैक्षणिक रूप से वह अवश्य ही लाभान्वित होगा।

7. उचित बिंब और प्रभाव : शिक्षा की प्रक्रिया में की प्रक्रिया में बालकों के अनुभव द्वारा मानस प्रतिबिंब बनते हैं उनका प्रभाव अधिगम परिणामों की दृष्टि से बहुत महत्व रखता है आधुनिक सूचना तकनीकी मानस बिंबों के रूप में अपनी पीछे स्थाई चिन्हों छोड़ने का कार्य करते हैं जिनके द्वारा स्थाई एवं प्रभावपूर्ण अधिगम में बहुत सहायता मिलती है ज्ञान के संवर्धन एवं संरक्षण में सूचना तकनीकी का लाभ प्राप्त होता है।

8. श्रव्य दृश्य सामग्री का उपयोग : सूचना तकनीकी के कारण हमारे सीखने और सूचनाओं की व्याख्या करने के तरीकों में भी काफी बदलाव आया है श्रव्य दृश्य सामग्री का उपयोग विद्यार्थियों को शीघ्रता एवं सरलता से सीखने में मदद करता है लेख एवं श्यामपट्ट नोट्स के माध्यम से ही दी जाने वाली शिक्षा विद्यार्थियों के लिए उबाऊ होती है लेकिन श्रव्य दृश्य सामग्री के माध्यम से वह आनंद की अनुभूति के साथ सीखता है हमारा मस्तिष्क की अपेक्षा श्रव्य सामग्री का आसानी से याद रख सकता है।

9. **अधिगम और प्रशिक्षण का स्थानांतरण :** एक समय में शिक्षा प्रक्रिया के दौरान विद्यार्थियों द्वारा जो कुछ भी सीखा जाता है उसका पूरा लाभ तभी मिलता है जब वह उसे अन्य विषयों या क्षेत्रों से संबंधित बातों को सीखने या वास्तविक जीवन में उसका प्रयोग करने में समर्थ हो सके यह कार्य तभी हो सकता है जब एक परिस्थिति में सीखी हुई बातों को दूसरी परिस्थितियों में स्थानांतरण करने की क्षमता विकसित हो जाए सूचना तकनीकी सामग्री का प्रयोग किस क्षमता के उचित विकास में बहुत ही उपयोगी सिद्ध हो सकता है।

10. **अधिक दूरी पर भी सीखना संभव :** सूचना तकनीकी विद्यार्थियों को विश्व के किसी भी कोने में ऑनलाइन शिक्षा के माध्यम से सीखने के अवसर उपलब्ध कराती है विश्व के कई विश्वविद्यालयों ने अपने शैक्षिक पाठ्यक्रम दुनियाभर में विद्यार्थियों के लिए खोल दिए हैं। बहुत कम फीस में ही विद्यार्थी इन विश्वविद्यालयों का हिस्सा

बन सकते हैं ऐसे विद्यार्थी भी उन विश्वविद्यालयों के नियमित विद्यार्थियों को पढ़ाने वाले शिक्षकों द्वारा ही उनका मूल्यांकन किया जाता है।

11. **विषय वस्तु की स्पष्टता :** विभिन्न विषयों से संबंधित बहुत से ऐसे संप्रत्ययो विचारों प्रक्रियाओं आदि को जिन्हें पुस्तकों से पढ़ कर समझता अथवा विधि द्वारा पढ़ना काफी मुश्किल होता है शब्दों के माध्यम से उन्हें सरल रूप से समझना या समझाना विद्यार्थी और अध्यापक दोनों के लिए विषय वस्तु सरल स्पष्ट सार्थक बन जाती है उदाहरण के लिए और ऊर्जा आंखें आदि की रचना और कार्यप्रणाली का अध्ययन करते समय अगर इसके चित्र मॉडल फोटोग्राफ या फिल्म्सट्रिप आदि का प्रयोग किया तो सीखने सिखाने के कार्य को बहुत ही स्पष्ट एवं सार्थक बनाया जा सकता है।

12. **विशेष योग्य विद्यार्थियों के लिए बेहतर साधनों की उपलब्धता :** सूचना तकनीकी के उपयोग के विशेष योग्य विद्यार्थियों के जीवन में प्रभावी परिवर्तन आया है इन को शिक्षित करने के लिए सूचना तकनीकी में अनेकों तकनीकें एवं सॉफ्टवेयर उपलब्ध है सुनने में अक्षम विद्यार्थी को संकेतों के माध्यम से भाषा सिखा कर उसे सामान्य विद्यार्थियों के शैक्षणिक स्तर तक लाया जा सकता है। दृष्टिहीन व्यक्तियों के लिए ब्रेल लिपि युक्त अथवा बोलने वाले कंप्यूटर और लैपटॉप का प्रयोग किया जाने लगा है इस प्रकार से सूचना तकनीकी के उपयोग से विशेष योग्यता वाले विद्यार्थी भी अन्य विद्यार्थियों के साथ ज्ञानार्जन कर सकते हैं।

13. **कक्षा में उचित अंतः संबंध और शैक्षिक वातावरण :** शिक्षण अधिगम कार्य की सफलता कक्षागत स्वरूप अंतर संबंधों और अनुकूल कक्षा वातावरण पर निर्भर करती है। सूचना तकनीकी के उपयोग से कक्षा का वातावरण सजीव हो उठता है उसमें निष्क्रियता तथा बोझिलापन नहीं रह पाता विद्यार्थी और अध्यापकों तथा स्वयं विद्यार्थियों के परस्पर विचारों के आदार-प्रदान और स्वस्थ अंतर क्रियाओं के अधिक अनुकूल अवसर प्राप्त होते हैं तथा कक्षा का वातावरण शैक्षिक दृष्टि से अधिक उपयुक्त बन जाता है विद्यार्थी एवं शिक्षक में सूचना तकनीकी द्वारा उचित अंतर्संबंध एवं शैक्षिक वातावरण का प्रभाव विकास करना संभव हो पाता है।

14. **अनुशासनहीनता का परिचय :** अनुशासनहीनता की समस्या परिस्थिति और वातावरण जन्म होती है बालकों में कार्य करने की अपार शक्ति होती है परंतु यदि इन शक्ति का सही उपयोग न हो तो उन में उपद्रव की प्रवृत्ति बढ़ती है सूचना तकनीकी से कक्षा का वातावरण सजीव व रुचिकर बनता है इससे विद्यार्थियों को शिक्षण और अधिगम प्रक्रिया में सक्रिय सहयोगी बनाकर अपनी शारीरिक और मानसिक शक्तियों के उपयोग के रचनात्मक अवसर प्राप्त होते हैं। अनुशासन से संबंधित समस्याओं के उत्पन्न होने की संभावनाएं कम हो जाती है। बायोमेट्रिक पद्धति की सहायता से शिक्षक एवं विद्यार्थियों की उपस्थिति में अनुशासन लाना संभव है अन्य संबंधित कार्यों में कुशलता एवं अनुशासन का विकास होता।

15. **वैज्ञानिक अभिवृत्ति तथा खोज प्रवृत्ति को बढ़ावा :** सूचना तकनीकी का प्रयोग विद्यार्थियों में वैज्ञानिक अभिवृत्ति तथा खोज प्रवृत्ति को विकसित करने के लिए पर्याप्त सहयोग दे सकता है सूचना तकनीकी आई.सी.टी. की सहायता से सीखने सिखाने की प्रक्रिया से वैज्ञानिक अभिवृत्ति का विकास करना संभव है विज्ञान सामाजिक विज्ञान का विषय ज्ञान वैज्ञानिक दृष्टि से प्राप्त करने का अवसर आई.सी.टी. से होता है।

16. **जनसंचारः** शैक्षिक प्रसार एक ऐसी शैक्षणिक प्रक्रिया है जिसमें उपयोगी ज्ञान को जन-जन तक संचालित किया जाता है। शैक्षिक प्रसार के महत्वपूर्ण अंगों में से एक अंग जनसंचार है संचार कि वह प्रक्रिया जिसके माध्यम से शिक्षक एवं विद्यार्थी आपस में जुड़ जाते हैं उसे जनसंचार कहते हैं इसका मुख्य उद्देश्य समप्रेषक एवं प्राप्तकर्ता के मध्य समन्वय स्थापित कर ज्ञान का प्रचार प्रसार करना होता है।

उपसंहारः

सूचना एवं संचार तकनीकी ने शिक्षा क्षेत्र को तीव्र गति से प्रभावित किया है सूचना एवं संचार तकनीकी का शिक्षा

क्षेत्र में उपयोग बड़ा है शिक्षा व्यवस्था में आधुनिक एवं सुधार का प्रभाव हुआ है सीखने सिखाने की प्रक्रिया को विद्यार्थी केंद्रित बनाने में आई.सी.टी. की महत्वपूर्ण भूमिका है ज्ञान प्राप्ति खोज संकलन संचरण भंडारण आदि के लिए सूचना एवं संचार तकनीकी का महत्वपूर्ण सहयोग प्राप्त हुआ है।

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15

E-LEARNING IN EDUCATION IN INDIA – CURRENT TRENDS AND FUTURE SCENARIO

Ms. Monika & Dr. Jatinder Pal***

E-Learning is the latest and emerging mode of modern education in India as well as in the entire world. For last two decades in almost in all the sectors and especially in the education sector the use of ICT is growing very rapidly. All the universities, colleges and schools have started offering online courses to satisfy the student needs, and to improve employee effectiveness. E-Learning can deliver more value at very less cost than any other traditional mode of education. E -Learning is more users friendly even though there are many issues that remain to be resolved including problems with assessment, and plagiarism etc. This study is based on the current trends of E-Learning and its future scenario towards the research process on educational technology. The scope of the E-learning has spread its root wide and depth in all educational institutions varies from schools to colleges and even in organizations for training and development for their employees.

Keywords: *E-Learning, Educational Technology, Educational Psychology, E-Learning Management, E-Learner Satisfaction, Higher Education Policy.*

INTRODUCTION

E-Learning is fast and easy way of teaching and learning through network technologies which gains most powerful response in the present education trend. It is used worldwide in schools, colleges, universities and various sectors of corporate world. The current work forces expected to be highly knowledgeable and skilled. It also expects that the learning process should take place continuously and acquire new skills by engaging in lifelong learning. E-Learning takes place in two ways for which involvement of the candidate with self discipline and self-motivation at higher degree is required. Synchronous method allows more number of candidates to learn, to exchange ideas and views at the sometime. Asynchronous is independent learning method. Growth of e-learning not only depended on infrastructure but also on few intangible things like perception of students, teachers, etc. Current research focuses on growth and challenges faced by e-learning industry.

The e-learning has undergone many changes and the growth and development is tremendous in the short duration of time. Technology enhancement has made the e-learning simpler and provides more choice to the users. Multimedia learning as the name suggests offered the learning with the combination of two or more media such as audio, video, images and music etc. So the traditional

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education materials are translated into interactive electronic form due to multimedia technology and authorized tool. It helps the teacher, student and whole education system to revamp their educational design process curriculum into interactive and rich media learning. It helps to make communication process strong and reinforcing and innovative methods of learning and teaching process. The learning enriched with technology enhancement i.e. learning process aided with or delivered in any form of technology like internet , computers , video conferencing, etc. the technology enhanced learning benefits both the provider and the learner.

E-LEARNING IN EDUCATION IN INDIA : CURRENT TRENDS

With the inclusion of "Quality Education" as one of the key sustainable development goals of UN, the emphasis is strongly on adult education and technological and pedagogical changes in teaching and learning. E-learning is big in India and its market size is growing very fastly. In fact India's E-learning market is the second largest after the US. Many institutions and organization in India are implementing the e-learning process to train and develop the students as well as the faculty. The basic idea behind it is to improve their skills and productivity of the generation. E-learning environment is getting more completed in education in India due to various courses offered through internet. E-learning platforms are changing the Indian education Landscape by addressing the demand –supply gap of both students as well as corporate employees dispensing personalized learning outcomes. The online education in India is growing due to the following factors:

1. The number of internet users has increased tremendously in the past and is expected to get a faster speed in future and India may replace China to have the second largest users after the US.
2. The internet offers huge accessibility to enroll for distance courses for the students as well as teachers in India. In this way students and teachers are the most active consumers of smartphones and internet, and it is they who look for online learning modules to fulfill their educational requirements without having to move out of home, office or city, and spending exorbitantly.
3. The cost of online education is comparatively very low. The internet in India also makes diverse courses, degrees and certifications from around the world easily accessible to urban as well as rural, and mentally or physically restrained population.
4. Online education providers in India has reached out to the masses without setting up a physical infrastructure or incurring administrative costs such as staff salaries, stationery, books, etc. Hence, the cost savings are passed to the users.
5. The aim of the government in India is to raise its current gross enrolment ratio to 30% by 2020. India will have the world's largest tertiary-age population and second largest graduate talent pipeline globally by the end of 2020. However, the existing educational infrastructure is not equipped to meet the additional capacity. The e-learning can supplement the conventional model, and bridge the gap to a considerable extent.
6. The government has launched several programmes under the initiatives such as 'Digital India' and 'Skill India' to spread digital literacy, and to create a knowledge-based society in India. The important initiatives include:

- e-Basta (schools books in digital form)
- e-Education (all schools connected with broadband and free wifi in all schools and develop MOOCs – develop pilot Massive Online Open Courses)

- Nand Ghars (digital tools as teaching aids)
- SWAYAM (MOOCs based on curriculum taught in classrooms from 9th class till post-graduation)
- India Skills Online (learning portal for skill training)

In order to establish digital infrastructure, the government has also launched National Optical Fibre Network (NOFN) which aims to expand broadband connectivity and faster network.

7. In India many online career advancement courses are being offered so that both job-seekers and working professionals may refresh and enhance their skils. The online courses could increase the chances of landing better jobs, switch jobs, get promotions, negotiate better pay packages and stay industry-relevant. Online career courses are affordable, give hands-on knowledge, can be completed in one-fourth time that of an offline course, and offer flexibility in terms of personal schedule. They can be done anywhere, anytime at one's convenience.

BUT, CHALLENGES ARE STILL MANY

With technology continuously influencing the education industry in India, educators are utilizing it to the fullest for providing education to people at fingertips. But there are several challenges still withholding this segment back. Educators need to tackle these challenges in order to unleash its actual potential. It must be noted that technology is just an enabler, requiring a human to operate it and make use of it. Thus the perceived advantages or for that matter disadvantages of technology when it comes to students is merely an outcome of the way technology is used or handled. The outcome of any technological intervention is dependent on the manner and purpose with which they are put to use. What is important is the responsible use of technology. Students should use it intelligently to learn more effectively.

Even though the concept of e-learning is set to create major waves in the education sector in the recent years, the challenges are streaming in. Many organizations have embraced e-learning with open arms, but the problems amount to a staggering sky-high heap when it comes to implementing e-learning at the school level.

Let's shed some light on the challenges faced.

1. The Internet is still a luxury in many parts of the country. A vast majority of the Indian population resides in rural areas. The lack of infrastructure in such areas gives rise to connectivity and accessibility issues. However, the Government of India has been instrumental in removing such barriers by implementing various measures.

2. Digital infrastructure is still not sufficient While the government has been making efforts to create and improve a digital infrastructure across the country, there hasn't been any noteworthy progress. According to World Economic Forum, only 15 out of 100 households have access to the internet, and mobile broadband remains for a privileged few.

3. E-learning does not cover a lot of certification courses. The certifications that come with conventional learning is somehow lost in the e-learning concept of education. The e-learning courses do not cover a lot of certification courses that are recognized by colleges and universities across India or abroad. This pulls the e-learning courses out of sync with any stream of school education.

4. Poor learning engagement in the E-learning system. In traditional classrooms, the student-teacher and peer-to-peer engagement is very high. Learners can approach the instructors and fellow students for feedback or discussions, and get their concerns addressed on-the-spot. E-learning

is yet not developed to a level to stimulate open-ended or crowd learning, unless the courses are imparted live with the help of an online instructor.

5. All learners are not tech-savvy. Even though the e-learning courses are available in a wide range of platforms for learners to choose from, a basic knowledge of how to operate those devices is imperative to benefit from the courses. Therefore, before e-learning could be implemented, learners and educators need to be educated about the ins and outs of technology to facilitate a smooth learning curve.

6. There is Lack of standardization; credibility and quality of online courses .The e-learning players offer multiple courses on the same subjects with different levels of certifications, methodology and assessment parameters. Online courses are designed and imparted by different instructors, who may be given autonomy to design the curriculum. So, the quality of courses may differ across different e-learning platforms. Most online courses do not get academic credits, credibility and recognition in the traditional educational eco-system.

7. India is a multi-linguistic country, and a majority of the population comes from non-urban areas. The online courses mostly focus on English content. Hence, non-English speaking students struggle with the availability of vernacular content.

8. Online courses are self-paced learning. There is minimum or negligible motivation due to lack of face-to-face interaction. Hence, the completion rate of online courses is very low.

FUTURE TRENDS OF E-LEARNING IN INDIA

E-learning sector in India will witness the following trends in the next few years:

1. There will be a convergence of online and offline education mode in the coming future. Online course providers will work actively on providing supplementary education, such as after-school coaching, e-tutorials, internships and live projects. They will also reach out to students at offline touch points like group discussions and labs. There will be virtual classrooms where traditional offline pedagogy will be aided by digital courses on practical knowledge and soft skills.

2. Addition of new and offbeat subjects will be introduced like data science, cloud computing and digital marketing, the e-learning curriculum will look to offer courses in unexpected subjects such as culinary management, forensic science, cyber law, etc.

3. Gamification will be adopted in which learning will be make more interesting,competitive and rewarding for academic students and professionals, the digital courses will incorporate features such as badges, discounts and leader boards. Corporate, educational institutions and e-learning platforms will come together to co-develop content.

4. E-learning providers will develop peer-to-peer model to establish collaborative learning between students through notes and idea sharing on a common platform. Technology such as artificial intelligence, big data, data analytics, facial recognition, etc., will be used to offer profile-based customized courses.

Thus,E-learning has a promising future; it could be on its way to become the next sunrise industry. However, it is highly unlikely that it will replace traditional learning; rather both models will work in tandem. The trio of Content, Delivery and Access will act as a change-agent in shaping up online education.

CONCLUSION

Online E-Learning is Vice versa for traditional learning (Face to Face). Many institutions and organization implement the e-learning process to train and develop the students and full time employees to improve their skills and productivity. E-learning environment is getting more completed due to various courses offered through internet. The major problem is the online courses which do not concentrate on psychological factor of learner like Cognitive, Behavioral, Social, Developmental, Constructivist and the courses are studied by Different age group, culture, designated people and the expectation from the course is highly vary from one another. So while creating and delivery the course by analyzing the learner perception and the psychological perceptive by the way the course will be getting more effective in psychological perceptive of learner and it will create an effective learning and teaching process.

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ROLE OF E-LEARNING, M-LEARNING, U-LEARNING IN TEACHING-LEARNING PROCESS

*Kiran Bala**

E-Learning and M-Learning is one of the important and innovative aspect of learning process which has enormous implication in the present education system. But in a country like India, which is not free from technical as well as social and educational challenges. Over the past ten years, M-Learning has grown from minor research interest to set significant projects in schools, higher education, work place etc. around the world. This paper also describes a new learning paradigm known as ubiquitous learning or U-Learning. The main aim of this work is to better understand and measure students' improvement, involvement towards the importance of ubiquitous learning in higher secondary education. This work clearly indicates that facilitating ubiquitous learning can improve the higher secondary education by enhancing ways of communication among students, teachers and supporting staff. The biggest advantage of this technology is that it can be used anywhere, anytime and its usage is easy access to a larger number of higher secondary students.

Key-word: *E-learning, M-learning & U-learning*

INTRODUCTION

Arrival of computer and internet in the field of education has changed the procedures and patterns of learning. Now learning patterns knocks at the door of students or learners. Today anyone learns anywhere, anytime. Latest information and content is available at low cost. New technological term replaced old terms such as – Banking into e-banking, Money into e-money, Commerce in to e-commerce, Governance in to e-Governance, Education in to e-education, Learning in to e-learning. And say that today's our life change in to e-life etc. E-learning is a new sensation in the field of education. Many terms have been used to define e-learning in past-web based training, web based learning and online-learning. E-learning was first called internet based training then web based training. Today we find these terms being used along with variation of e-learning (Jugon.2003) in this paper researcher describes a new learning paradigm known as M & U learning which is supported by the Ubiquitous Computing Technologies. The awareness of changes associated with the development of information technology becomes the need of every human being, who with age, and gained education and life experience increasingly takes over education in their own hands. Changes in information technology occurring all the time cause that almost never any of the above raised issues will be finally solved. As an example of such problems one can enumerate the preparation of

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teachers in the field of information technology. Continuous growth of knowledge forces the society to use time for education of younger generation efficiently. Nowadays, modern education is able to provide civilizational advancement of children and young adults. Being aware of the fact that students are critical and demanding recipients, and that the offer of the possibility of their education increases day by day, a proper preparation of information of every teacher has now become a significant issue. Therefore, quite often, experienced teachers decide to undertake additional studies in information technologies, especially with modern methods, in order to improve their educational workshop

MEANING OF E-LEARNING

E-learning is a term that means something different to almost everyone who uses it. Some use the term to refer to packaged content pieces and others to technical infrastructures. Some think only of web-based self-study while other realizes e-learning can encompass real time learning and collaboration. Almost all agree that e-learning is an effective method that should be blended in to a corporation's current learning mix. E-learning refers to the use of internet or wireless technologies to deliver a broad array of training solutions.

E-learning includes learning that has an electronic component in its delivery. For instance online learning or distributed learning where e-mail or video conferencing or digital formats are used. e-learning can reach an unlimited number or people virtually stimuli tenuously. Everyone gets the same content, presented the same way. Yet the programs can also be customized for different learning needs or different groups of people. In other words we can say that e-learning provides the potential to provide the right information to the right people at the right time and places using the right medium. Thus the term e-learning can be summarized in a single statement deliverance of education or any learning via any electronic means.

THE MOST IMPORTANT BENEFITS OF E-LEARNING IN TEACHING LEARNING PROCESS

Today's learners and teachers want relevant , mobile, self-paced and personalized cintent. This need is fulfilled with the online mode of learning ; here, students and teachers can learn and teach at their own comfort and requirement. Let's have an analytical look at the advantages of online learning.

1. Online learning accommodates everyone's needs.
2. Lectures can be taken any number of times.
3. Offers access to updated content.
4. Quick delivery of lessons.
5. E-learning helps in creating and communicating new training , policies, concepts and ideas.
6. E-learning enables educators to get a higher degree of coverage to communicate the message in a consistent way for their target audience.
7. E-learning is cost effective as compared to traditional forms of learning.
8. E-leaning has a positive influence on an organization's profitability.
9. Less impact on environment.

Due to the wide set of benefits it gives to students , e-learning has become quite popular and appreciated among students all over the world.

MEANING OF M-LEARNING

M-learning is the idea that a student can learn from any place at any time using portable learning devices. M-learning or 'mobile learning' is any sort of learning that takes advantages of learning opportunities offered by mobile technologies. In other words, mobile learning decreases limitation of learning location through the mobility of portable device. M-learning is convenient in the sense that it is accessible from virtually anywhere, which provides access to all the different learning materials available. It is also collaborative, sharing is almost instantaneous among everyone using the same content, which leads to the reception of instant feedback and tips. M-learning also bring strong portability by replacing books and notes with portable devices filled with tailored learning content. While there are some great advantages afforded by mobile learning, there are can be problems when m-learning is not designed well. As mobile devices become more and more powerful it will become easier to design effective mobile learning. M-Learning involves learning anywhere with no need to physically connect to an out let. There is also a focus with the latest technology of e-learning being delivered with "just in time", "just enough" and "just for me" concepts. According MoLeNET, "The exploitation of ubiquitous handheld technologies, together with wireless and mobile phone networks, to facilitate, support, enhance and extend the reach of teaching and learning". Polsani (2003) defines "mobile learning as a form of education whose site of production, circulation and consumption is the network". Traxler (2005) defined it as "any educational provision where the sole or dominate technologies are hand held and palmtop devices." Most researcher and educators probably view mobile learning as the immediate descendant of e-learning. In other word we can say that m-learning provides the potential to provide the right information to right people at the any time and any place using portable learning devices. Thus the m-learning can be summarized in a single statement – "deliverance of education or any learning via any portable devices".

CHARACTERISTICS OF M-LEARNING

Accessibility - The information is always available whenever the learners need to use it.

Immediacy - The information can be retrieved immediately by the learners.

Interactivity - The learners can interact with peers, teachers and experts efficiently and effectively through different media.

Context-awareness - The environment can adopt to the learners real situation to provide adequate information for the learners.

Permanence - The information remains unless the learners purposely remove it. Most of mobile devices have lower prices than desktop PCs. Similar size and light weight than desktop PCs. Ensure bigger students engage as m-learning is based on modern technologies, which students use in everyday life. Using GPS technology the m-learning can provide location depend educator.

BENEFITS OF M-LEARNING

1. Relatively inexpensive opportunities, as the cost of mobile devices are significantly less than PCs and laptops.
2. Multimedia content delivery and creation options.
3. Continuous and situated learning support.
4. Decrease in training costs.
5. Potentially a more rewarding learning experience.

6. Improving levels of literacy, numeracy and participation in education amongst young adults.
7. Using the communication features of a mobile phone as part of a larger learning activity, e.g.: sending media or texts into a central portfolio, or exporting audio files from a learning platform to your phone.

MEANING OF U-LEARNING

Ubiquitous is a term referred (Weiser M 1991) of a world where invisible devices would support people in everyday activities, offering boundless access to learning resources anytime and anywhere. In a higher secondary educational environment, teachers and students can take advantage of new trends in ubiquitous computing, employing ubiquitous devices and technologies in the learning space. Actually, young people carry mobile devices anywhere and anytime and enjoy playing with new gadgets (Cook DJ & Das S.K 2012) . Educators and curriculum developers need to acknowledge this reality and adopt "Learning device gadgets on 21st-century tools for 21st-century learners" (Norris C & Soloway E 2008) . An electronic learning (e-learning) environment is characterized by the dissemination of knowledge over the Internet. In e-learning, desktop or laptops computers, software tools such as e-tutoring and self-assessment and communication applications such as chat, forums and video calls can be used to support learning. A ubiquitous learning (u-learning) environment is a learning environment supported by ubiquitous devices such as Web Pads, Ultra-Mobile PCs, Tablet PCs, Personal Digital Assistants (PDAs) and smart phones. These devices can connect to Internet through wireless communication technologies. Mobile learning (M-learning) is considered either as a subset of e-learning (Mellow P 2005) or an extension of e-learning (Motiwalla L 2007) . M-learning is not just e-learning with mobile devices. Information is accessed from anyplace (spatial aspect of mobility), at anytime (temporal aspect of mobility) and also by anyone (individually and collaboratively) (Herrington A, Herrington J, & Mantei J 2009).

ROLE OF UBIQUITOUS IN EDUCATION

The integration of ubiquitous in education has led to the emergence of ubiquitous learning (u-learning) (Kanagarajan S, Ramakrishnan S 2017). U-learning environments integrate not only m-learning into e-learning environments (Casey D 2005) , but also pervasive learning environments that utilize invisible computers such as wearable computers, or sensors and computers embedded in objects (Kolomvatsos K 2007). While m-learning environments focus on mobility, pervasive learning environments focus on embeddedness. Therefore, u-learning integrates m-learning and pervasive learning to a high level of mobility and a high level of embeddedness (Ogata H & Yano Y 2004). U-learning environments are supported by mobile and ubiquitous technologies including mobile devices, embedded computer devices such as GPS, RFID tags and sensors, pads and badges, as well as wireless sensor networks. The another work (Hwang GJ Tsai CC & Yang S J H 2008) clarified the confusion of the term "u-learning" and the related terms "m-learning", "learning with u-computing technology", and "context based u-learning". In particular, the definition of u-learning as "anywhere and anytime learning" is broader than m-learning, which demands mobile devices and wireless communication. Then, "learning with u-computing technology" is a special case of m-learning, since it emphasizes not only the usage of wireless communication but also sensor technology (Kanagarajan S, Ramakrishnan S 2017) . Finally, "context based u-learning" that employs mobile devices, wireless communications and sensor technologies in learning activities, can be considered a special case of

learning with u-computing technology. Therefore, a u-learning environment is considered a superset of the other three types of environments.

ADVANTAGES OF UBIQUITOUS LEARNING IN HIGHER SECONDARY EDUCATION

According to the researchers finding, there are several advantages inherent in ubiquitous learning:

- Helps to improve desirable learning in behavior.
- Helps learners to improve literacy and numeric skills.
- Helps learners to recognize their existing abilities.
- Can be used for independent and collaborative learning experiences.
- Helps learners to identify where they need assistance and support.
- Helps to overcome the digital divide.
- Helps to make learning informal.
- Helps learners to be more focused for longer periods.
- Helps to raise self-esteem and self-confidence.
- Comparatively more achieved with other technologies enabled learning.

In various parts of the world ubiquitous learning developments are taking place at three levels:

- The use of ubiquitous devices in educational administration (Kanagarajan S, Ramakrishnan S 2016b).
- Development of a series of 5-6 screen u-learning academic supports for students.

CONCLUSION

The process of teaching in e-learning means that the student is a central part in this type of education, but a teacher is a programming, controlling and evaluating individual. Selection of appropriate teaching aids as well as appropriate methodological assumptions has a significant impact on the final form of teaching. The use of "effects" in training should be appropriately centered so that each user can find the content corresponding to him. Knowledge acquisition is different because of the age of the user – may be different in the elderly people than in the young participants. Some prefer quiet presentation, which will allow them to familiarize themselves with the content by reading the text on each screen. Others will avoid such screens. For the latter, lack of animation and interaction may cause boredom. If in the company work young people, then there is a greater likelihood that they will choose interactive training, like gamer or animations, while older people rather choose presentations. Ubiquitous technologies are perceived by the higher secondary students in this work to be good in improving communication and learning. Ubiquitous technologies do appear to have a great future in developing countries. Indeed, ubiquitous devices such as tablet PC's, kindle etc. are one of the less expensive, most accessible and popular media among students of all ages. Flexible and low cost mobile technologies can be used to maintain and enhance contact with students and teachers, and, by arranging training effective use can be enhanced in ubiquitous learning.

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ROLE OF ICT IN TEACHING LEARNING PROCESS

*Iqbalpreet Singh**

INTRODUCTION

ICT Stands for "Data and Communication Technologies." ICT alludes to advancements that give access to data through media communications. It is like Information Technology (IT), however centers principally around correspondence innovations. This incorporates the Internet, remote systems, PDAs, and other correspondence mediums. In the previous couple of decades, data and correspondence innovations have furnished society with an immense range of new correspondence capacities. Brilliant innovation" is the commonplace phrasing that is generally being utilized in each being's life. Cell phones, tablets, contraptions, shrewd TVs, and so forth, are the results of keen innovation that have made human life more intelligent, less demanding and open. Keen innovation has improved the method for living as well as turned into a coordinated piece of everybody's life. The Information and Communication innovation to be exact has turned into a main thrust behind monetary development and a formative instrument too. ICT is an all-inclusive term for Information innovation which is a mechanical source to make data accessible at the perfect time, correct place in the correct frame to the correct client. Prior, one needed to trust that the papers will get the data over the world. Presently with the more brilliant innovation, data can be gotten to from anyplace utilizing cell phones and devices. This is made conceivable with the assistance of Information and Communication Technology. Data innovation has been impacting our lives in the ongoing years in the fields of instruction, medicinal services, and business. Going an additional mile, Information and correspondence innovation in schools has had a noteworthy effect.

ROLE OF ICT IN TEACHING AND LEARNING

India has made great strides in the utilization of data and correspondence innovation as of late and this is reflected in an energetic and quickly developing economy. It is currently a recognized world pioneer in the information business. Today, every one of our exercises are winding up very information based. There is a move from the mechanical period to the instructive time. Globalization, progression and a market situated economy have added new flavor to our exercises, with the outcome that learning and aptitudes of each expert, including Teachers should have been ceaselessly refreshed. Anyway the instruction segment, especially the region of educator training, has fallen behind different segments of the Indian economy in profiting from the products of innovative advancement. The

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present training framework faces the difficulties to get ready people for the data society in which a standout amongst the most critical points is to deal with data. So as to work in the new world economy, students and their Teachers need to figure out how to explore huge measure of data, to dissect and decide, and to ace new information and to achieve complex errands cooperatively. Such a move in center can be viewed as another phase of our general public, described by another prevalent worldview. The essential worry of for teachers is to build up the fullest capability everything being equal, bearing them chances to seek after assortment of roads of achievement. Data and correspondence innovation in schools can be utilized as a school specialized instrument to enhance student learning and better instructing systems. With the headway of innovation in training, schools receive school correspondence programming to transmit, store, offer or trade data. In this innovative time, ICT in training has constrained numerous schools to inspire acclimated with savvy innovation. This school correspondence programming utilizes computers, the Internet, and mixed media as the vehicle of correspondence.

Computer Based Learning

Computer based learning is one of the modules of school specialized device that encourages students to improve their learning abilities through computer supported training. It bestows computer learning in students and empowers them to get a lot of data from different sites. Following two many years of acquainting computers with schools, training has been upset as far back as at that point. It lessens time spent on mechanical errands, for example, modifying, creating diagrams and expands the extent of seeking. It helps in discovering data as well as in arranging data making it less demanding to impart to other people.

Internet

Internet instruments like Email, informal communities, newsgroups and video transmission have associated the world more than ever. Students would now be able to impart utilizing messages and long range interpersonal communication bunches that give learning based data. Separation learning, Internet based learning is additionally empowered through the Internet. Students can learn on the Internet and furthermore converse with specialists on the Internet. Notes, readings, instructional exercises, assignments can be gotten by students from anyplace. The Internet gives significant data in writings, sounds, recordings and illustrations which can be gotten to by the person. Internet learning enables students to collaborate with one another and workforce to connect with students.

Classroom Learning

With the presentation of ICT in training, classroom learning is one characteristic that makes learning experiential and exploratory to students. Students can tune in to the educator or instructor, get obvious signals through PowerPoint pictures, presents or whiteboard records and take an interest effectively. This aids in prompt collaboration and students have chances to make inquiries and take an interest in live exchanges. This school correspondence programming module further advantages in building and keeping up close to home and expert connections as classrooms offer more prominent individual contact with different students and instructors. Classroom learning incorporates the accompanying

- **One laptop per child:** Less costly computers have been intended for use in school on a 1:1 premise with highlights like lower control utilization, an ease working framework, and exceptional re-programming and work arrange capacities. Regardless of endeavors to

lessen costs, be that as it may, giving one laptop for each youngster might be unreasonably expensive for some creating nations.

- **Tablets:** Tablets are little computers with a touch screen, permitting contribution without a console or mouse. Modest learning programming ("applications") can be downloaded onto tablets, making them an adaptable instrument for learning. The best applications create higher request thinking aptitudes and give innovative and individualized choices to students to express their understandings.
- **Interactive White Boards or Smart Boards:** Interactive white sheets permit anticipated computer pictures to be shown, controlled, hauled, clicked, or replicated. At the same time, transcribed notes can be gone up against the load up and put something aside for later use. Intelligent white sheets are related with entire class guidance instead of student focused exercises. Student commitment is commonly higher when ICT is accessible for student use all through the classroom.
- **E-Readers:** E-readers are electronic gadgets that can hold several books in computerized shape, and they are progressively used in the conveyance of perusing material. Students both gifted readers and hesitant readers have had positive reactions to the utilization of tablets for free perusing. Highlights of tablets that can add to positive use incorporate their transportability and long battery life, reaction to content, and the capacity to characterize obscure words. Also, numerous great book titles are accessible for nothing in digital book frame.
- **Flipped Classrooms:** The flipped classroom demonstrate, including address and practice at home by means of computer guided guidance and intuitive learning exercises in class, can take into consideration an extended educational modules. There is little examination on the student learning results of flipped classrooms. Student discernments about flipped classrooms are blended, however for the most part positive, as they incline toward the agreeable learning exercises in class over address.

Video Conferencing

This is one more vehicle of correspondence wherein students can speak with different students or Teachers on the Internet. It empowers students to wind up dynamic members in their very own learning. Video Conferencing is an incredible specialized apparatus that can possibly change the manner in which we convey data to students. It is only one of the present integrative advances that engage students to get ready for a superior future.

Enhances Commitment

At the point when innovation is coordinated into exercises, students are relied upon to be increasingly inspired by the subjects they are contemplating. Innovation gives distinctive chances to make adapting progressively fun and charming regarding showing same things in new ways. For example, conveying educating through delight, taking students on virtual field treks and utilizing other internet learning assets. In addition, innovation can support an increasingly dynamic cooperation in the learning procedure which can be difficult to accomplish through a customary address condition.

Enhances Learning Maintenance

Students who are locked in and keen on things they are examining, are relied upon to have a superior learning maintenance. As referenced previously, innovation can empower dynamic investment

in the classroom which likewise is an imperative factor for expanded learning maintenance. Diverse types of innovation can be utilized to try different things with and choose what works best for students as far as holding their insight.

Energizes Individual Learning

Nobody learns similarly in light of various learning styles and diverse capacities. Innovation gives extraordinary chances to making adapting increasingly viable for everybody with various necessities. For instance, students can learn at their own speed, audit troublesome ideas or avoid ahead in the event that they have to. Additionally, innovation can give more chances to battling or debilitated students. Access to the Internet gives students access to an expansive scope of assets to lead explore in various courses, which thus can build the commitment.

Energizes Coordinated Effort

Students can rehearse joint effort abilities by getting engaged with various online exercises. For example, dealing with various activities by working together with others on gatherings or by sharing reports on their virtual learning situations. Innovation can empower joint effort with students in a similar classroom, same school and even with different classrooms around the globe.

Students can Learn Helpful Fundamental Abilities through Innovation

By utilizing innovation in the classroom, the two instructors and students can create abilities basic for the 21st century. Students can pick up the abilities they should be effective later on. Current learning is tied in with working together with others, taking care of complex issues, basic reasoning, creating distinctive types of correspondence and administration abilities, and enhancing inspiration and profitability. Additionally, innovation can help create numerous pragmatic abilities, including making introductions, figuring out how to separate solid from questionable sources on the Internet, keeping up legitimate online decorum, and composing messages. These are critical abilities that can be produced in the classroom.

Advantages for Teachers

With endless online assets, innovation can help enhance educating. Instructors can utilize diverse applications or confided in online assets to upgrade the customary methods for instructing and to keep students progressively locked in. Virtual exercise designs, reviewing programming and online appraisals can enable instructors to spare a great deal time. This important time can be utilized for working with students who are battling. In addition, having virtual learning conditions in schools upgrades joint effort and information sharing between instructors.

Quick Communication

The Internet advances quick correspondence crosswise over land boundaries. Your students can join community oriented tasks that include students from various states, nations or main lands. This kind of learning background was unrealistic before the Internet. This is an interesting learning knowledge exceptionally fundamental for every one of our students, as the world is getting to be one major network.

Obtaining Varied Writing Skills

On the off chance that students are required to distribute their work on the Internet, they need to create hypertext abilities. These aptitudes enable students to pick up involvement in non-successive

works. In addition, and since the Internet is available to all with access, students distributing their work on the Internet are compelled to be aware of their dialect and to write to non-master crowd.

DISADVANTAGES OF USING ICT FOR EDUCATION

The utilization of the Internet for instruction isn't without issues. Along these lines, one ought to anticipate that the issues should be experienced in utilizing the Internet in educating to advance also. There are some disservice of utilizing ICT for instructing and learning:

Literary Theft

Aside from Internet locales that guarantee to enable students to compose research projects, there are various instances of students downloading data from the Net and handing them over for evaluations. We can limit this issue by expecting students to refer to inquire about sources. There is an online administration, Plagiarism.org at http://www.plagiarism.org/, which can help us in limiting instances of counterfeiting in the class. This administration professes to avoid copyright infringement by deciding whether a research project has been replicated from the Internet or not.

Student Privacy

Crooks, advertisers, and different people can without much of a stretch get data from students when they are on the Internet. These could present peril on students' lives or may even prompt prosecution against the school. To stay away from this issue, students ought to be taught on the perils of offering data to individuals on the Internet. Guardians and instructors need to administer students' online exercises.

Low Income Groups

As indicated by the US Department of Education, over half of government funded schools with a high minority enlistment had a lower rate of Internet access than state funded schools with a low minority enlistment in 1997. The equivalent was valid for instructional rooms in those schools. Furthermore, students from low-pay families might not have computers at home or may have computers at home with no entrance to the Internet. Thus, students in low-salary networks might be hindered. To decrease the impact that social or financial status may have, we should give Internet assignments that students can without much of a stretch total while in school. On the off chance that important, schools may need to keep computer labs open for more and additionally odd hours. The utilization of computers at open libraries ought to likewise be energized.

Planning Time

It requires a great deal of planning investment to viably utilize the Net for training. Notwithstanding structuring Internet based exercise designs, we may need to surf the Internet to download exercise designs and adjust them to help the educational modules destinations or visit locales to choose those suitable for classes. We must choose between limited options yet get ready so as to enable your students to wind up mindful client of the Internet.

New Administrative Responsibilities

Training utilizing the Internet conveys to hold up under another arrangement of managerial requests on the educator and the school organization. These incorporate improvement and execution of worthy use strategy, preparing, growing new assessment criteria as required, and tending to guardians' worries.

CONCLUSION

In whole, not all exercises can be consolidated into the Internet. In showing utilizing the Net, we need to persuade that utilizing the Net includes something new, some genuine incentive to our instructing. Yet additionally, students ought to be prepared to utilize the accessible innovation productively. We ought to team up with different Teachers in the school and in the framework, since collaboration and shared comprehension is imperative particularly when the school has few Internet accounts. Through the net, the student can impart or team up with different students or specialists in the field crosswise over topographically limits. Also, they can join a news assemble on a specific point of intrigue. What is most fascinating about the Net, the extent that correspondence is concerned, is that it is race, age, national root, and sexual orientation dazzle? The Net likewise empowers students to distribute ventures' discoveries to be seen by their companions the world over. This may give a few students the inspiration they have to finish their work on time, to be aware of their dialect. In this way, every student can profit by a Net correspondence venture.

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18

INNOVATIVE TEACHING PRACTICES IN HIGHER EDUCATION

Dr. Manisha Sharma, Ms. Manpreet Kaur** & Ms. Nisha Rani****

A teacher has a higher responsibility as compared to other professionals as students look upon the teacher as an embodiment of perfection. Gautama Buddha has rightly preached "Desire is the root cause of Evil". Students are told not to fulfill their desires by improper ways, by adhering to immoral activities. Basically teaching must include two major components sending and receiving information. Ultimately, a teacher tries his best to impart knowledge as the way he understood it. So, any communication methods that serve this purpose without destroying the objective could be considered as innovative methods of teaching. The use of innovative methods in educational institutions has the potential not only to improve education, but also to empower people, strengthen governance and galvanize the effort to achieve the human development goal for the country. The present paper is an attempt to state the importance of teacher in higher education in the present system so that the future generations will nourish high ideals and values to contribute in the development of the society. This paper also evaluates the traditional methods of teaching as well as multimedia teaching and to suggest other useful teaching methods that can be attempted in imparting knowledge to the students.

Keywords: *Character–Building, Ethics, Gurukul system, Torch-Bearers, virtues and Vices, traditional methods of teaching, multimedia teaching.*

INTRODUCTION

Present education system deals with imparting knowledge of "Apara Vidya" i.e. study of Physics, Chemistry, history, biology etc; as well knowledge of scriptures and Vedas. The knowledge which we possess through the present education system is Apara Vidya which means that although we have knowledge of the world we do not have knowledge of our own self, of the supreme reality which is beyond time and space. We get knowledge of the external world. Today's education system is designed in such a way that a human being will achieve materialistic success and superficial achievements but he will lack virtues like kindness, honesty, compassion, righteousness, peace, love, non-violence etc. Human beings have become individualistic and self-centered. This infuses in them jealously, Hatred and rivalry. Stability of society is threatened by the breakdown of ethics. The basic aim of education should be to produce men of knowledge and culture. Values such as Patriotism, anti-untouchability, dignity of individuals, endurance, social service, justice, national integration find

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no place in today's world of corruption, violence, intolerance and money-making. Education is a light that shows the mankind the right direction to surge. The purpose of education is not just making a student literate but adds rationale thinking, knowledgeable and self sufficiency. When there is a willingness to change, there is hope for progress in any field. Creativity can be developed and innovation benefits both students and teachers.

IMPORTANCE OF EDUCATION

Islam attaches such great importance to knowledge and education. When the Qur'an began to be revealed, the first word of its first verse was **'Iqra'** that is, read. Education is thus the starting point of every human activity. A scholar (alim) is accorded great respect in the hadith. According to a hadith the ink of the pen of a scholar is more precious than the blood of a martyr. The reason being that martyr is engaged in defense work while an alim (scholar) builds individuals and nations along positive lines. In this way he bestows a real life to the world**. "Education is the manifestation of perfection already in man"** – (Swami Vivekananda) Education is a light that shows the mankind the right direction to surge. If education fails to inculcate self-discipline and commitment to achieve in the minds of student, it is not their fault. We have to convert education into a sport and learning process has to generate interest in the students and motivate them to stay back in the institution than to run away from it. Education should become a fun and thrill to them rather than burden and boredom. It is an integral part of their growth and helps them become good citizens. Education is an engine for the growth and progress of any society. It not only imparts knowledge, skills and inculcates values, but is also responsible for building human capital which breeds, drives and sets technological innovation and economic growth. In today's era, information and knowledge stand out as very important and critical input for growth and survival. Rather than looking at education simply as a means of achieving social upliftment, the society must view education also as an engine of advancement in an information era propelled by its wheels of knowledge and research leading to development.

RESEARCH OBJECTIVES

1. To attempt to state the importance of teacher in higher education in the present system.
2. To evaluates the traditional methods of teaching as well as multimedia teaching and to suggest other useful teaching methods.

CURRENT SCENARIO OF HIGHER EDUCATION IN INDIA

Now-a-days it is very frequently observed that students sign up for higher studies with less interest or take is casually. Moreover, there are very few institutions in India who are giving quality inputs so as to inculcate the learning skills amongst students. Higher Education System in India compare to developing / developed countries needs substantial improvement. The percentage of students taking higher education is hardly about 13 % whereas the same is varying between 28 to 90 %, across the world. At one end we claim that India would rank 3rd among all countries by 2020 in education. If we observe overall ranking of relevant institutions it seems that in the year 2000, out of 500 there were 2 Indian Universities / Institutes were featured in the list, and 1 institution from China. We are not only beaten in by the developing and developed countries in terms of GDP, Exchange of foreign currency but also in terms of number of students pursuing higher education. Basic education must reach to maximum number of children from different strata of the society so

that they are eligible to pursue higher education. Over and above, institutions must also concentrate on giving away quality inputs to the students. Institutions must look into constantly updating the syllabus in order to help students adapt with the changing market scenario. To start with they can look at making education liberal, introduce new practices & applied research work; updating the course curriculum frequently. If such developments take shape in its true sense in our country students would be attracted to pursue higher education which will in turn fulfill corporate expectations. Efforts should also be taken to guide, mentor students and parents to develop and retain interest amongst students. In addition to above, curriculum should also include sports, hobby classes, vocational skills development program, employability enhancement & soft skills development programs, entrepreneurship development modules, specialization wise clubs and committees of students, practical assignments related to their field, industry interface related modules such as internships, industry visits, guest lecturers / workshops / seminars, participation in summits, management quiz etc.. with evaluation / monitoring system so as to ensure continual improvement in the same. Special emphasis must be given to communication and presentation skills, especially for students coming from rural background / remote locations and that for student's studies in vernacular languages.., so that they can perform well in the corporate world, across the globe. Institutions should also inculcate multitasking abilities amongst students, foreign languages, advanced IT knowledge so that they can perform better in the chosen field. Student exchange, cultural exchange should be encouraged and various ways and means should be found to enhance students' interest level & participation.

ROLE OF TEACHER IN IMPARTING HIGHER EDUCATION

Ordinary Teachers can bring about extraordinary transformation in the society. A teacher should practice what he preaches. Teachers are a role-model for the students. Their actions convey more than their words. Students learn values from what the teachers are rather than from what they say. Teacher makes a maximum impact on the personality of a student in the formative years. Students imbibe virtues and vices knowingly and unknowingly from theses role models. Teachers demonstrate the appropriate behavior of their students by their actions. Teachers must have healthy attitude and should possess rich values. Teaching is all about attitude positive/ negative towards their job of imparting quality education. Teacher should act as a friend, philosopher and guide. A teacher is not only a source of information but is also a mentor and guardian. A teacher can maintain values and nurture them. A teacher has an immense potential of bringing about a sea change in the society by demonstrating essential values of head and heart. Teacher can impart values in students by giving them instructions through discussion, experimentation and lectures and by the following mentioned ways:

1. Teachers can maintain a case-study register to closely observe the students and note down the positive and negative traits of their personality.
2. Teachers should also tell the students to maintain a spiritual diary in which they will surrender themselves to God and take an oath to follow the path shown buy him.
3. By organizing cultural and sports events "Thought for the Day" should be employed in assemblies. Moral thoughts trigger in them moral thinking.
4. Teachers should give importance to cooperative learning. Skits, role plays propagating moral values can be performed by students under the guidance of teacher.
5. Teacher must tell the students to go to the libraries- the treasure house of knowledge.

Classics available in the library are morally rich and inspiring.

6. Teacher must explain the students the importance of meditation & yoga practices for realization or the attainment of oneness with God.
7. Every day a Teacher must spent at least 5 minutes on moral lecturing.
8. Impart knowledge of foreign languages to make them know different cultures.
9. Organize games, excursions, visits to places of historical importance.
10. Club activities like nature club, literary club, wildlife prevention club, social service camps, blood donation etc.
11. Suicidal tendencies in students should be curbed.

VARIOUS TEACHING METHODS

Traditional Teaching Method

Basically, the teacher controls the instructional process, the content is delivered to the entire class and the teacher tends to emphasize factual knowledge. In other words, the teacher delivers the lecture content and the students listen to the lecture. Thus, the learning mode tends to be passive and the learners play little part in their learning process. It has been found in most universities by many teachers and students that the conventional lecture approach in classroom is of limited effectiveness in both teaching and learning. In such a lecture students assume a purely passive role and their concentration fades off after 15-20 minutes. Some limitations which may prevail in traditional teaching method are ¾ Teaching in classroom using chalk and talk is "one way flow" of information

Enacting the stories

Stories form a very integral part of teaching a language. These stories help teach the students about the formation of sentences and how to express their thoughts and a lot of other things and plus they help in keeping the students interest alive as the story's end is something that every student wants to know. It appeals to the inquisitive nature of the students. Any unfinished story always keeps the mind of the reader agitated. Although this method of using stories has been implemented the procedure of teaching the language through it is generally not right. The evaluation procedure of testing the students in their proficiency over the language is through questions based on the story. This is generally not that effective. Due to this the students generally tend to take up the stories as a chapter rather than looking at it as an interesting read.

Teaching through conversations

Conversations are by far the most useful ways of teaching the language. When a child learns his or her mother tongue it is by the conversations that takes place between them and others or by listening to the conversations made by the others. The child is never taught the language but is still able to percept the meaning and learns it automatically to use it in day to day life. No one ever teaches the kid the characters of the language or how to make sentences or the grammar of that language. The conversations alone teach the children. Hence conversations form a very important part of the teaching process. The sentence construction and the grammar is not something that can be entirely taught by rules. They have to be taught intuitively. That can only happen through a lot of reading and a lot of listening. This can be taken care of easily as every conversation needs a topic. The topic can be given to the students in form of written documents which they have to first read then form an opinion and then have a conversation about it or it can be spoken out and then they can

listen, understand and also take part in the conversation. The participation and other aspects of the conversation can always be evaluated through points which will also push the students to take part in the conversation. These conversations have to be general. They have to happen as if friends are talking to each other. This way the students are comfortable in expressing themselves in the best possible way. This process may take some time but in the end it would be the most efficient one in teaching the language

Word games

The most important part of any language is the vocabulary. To understand the meaning of the words and to use them in day to day life is a very difficult task and games can help the students overcome this Innovative Methods of Teaching. Games like scrabble, housie etc. have been designed for this specific purpose. These games are just based on words and help the students develop their vocabulary. In addition to these very simple games can be played to help improve the word database of the students such as simple dictation competitions, synonym competitions, words puzzles, anagrams and hangman. All these games are very addictive and help a lot in improving our vocabulary as whenever the student hears a new word the first question that comes up is "what is its meaning?" and in this way the vocabulary improves and most of the times we don't even have to consult the dictionary.

Creative assignments

Up till now most of the techniques that we discussed required a greater amount of effort on the student's part. This method requires effort on the teacher's part. Assignments help the students learn something on their own and most of the times they have to research on something then write something up on it. This method although effective is most of the times very tedious. This method of approach is very appropriate for sciences and engineering although when it comes to languages the students should be given assignments in which they have to modify something that already exists. In such case the students should be given the base knowledge and data and then ask them to modify the data for example the students can be given a base story and then ask them to modify a part of it. This engages their creativity and also helps them overcome their difficulty of writing. Above all it lifts the pressure of creating completely new. Invention is very difficult especially when we are being forced to do it. In this way the students are not forced to complete the assignment and then they can do it whole heartedly and hence complete the learning experience that can be gained from the assignment

Help from the multimedia

Multimedia sources like songs, movies, TV series, magazines, newspapers play a very vital role in improving our language. We don't even realize that they have helped us. We just wake up one fine day and realize that we are better than it than we were yesterday. Such sources can be used to help the students improve their language. But great precautions must be taken. This method should be used in the final stages of learning as that is the only place where there is no scope of damage as most of the movies and songs etc. The songs are the best way to communicate how to use a language to express our feelings. Movies are a very common past time but apart from that most of the times they are also very instructional and educational. Also this method appeals to the students as most of the times they are able to connect with the songs and the movies which help them understand the meaning of expressions, usage of tools of the language like comparisons,

personifications etc. These sources help them understand why such tools are necessary and also help them understand their usage. Hence this method is again very effective in teaching the language. Traditional methods of reading newspapers and books, novels are also very good methods to teach the language. When the traditional methods are modified along with some innovative ideas the entire learning and the teaching process is enriched and guarantees a success in efficient learning. These are some of the innovative and creative ways of teaching the English Language.

CONCLUSION

Thus Teachers play an important role in the nation building by character building of the students. The best and the greatest profession in the world is that of a teacher, because the future of a nation depends upon the type of teachers who shape the future generations. Every teacher plays the most important role in shaping the students as enlightened citizen. Swami Vivekananda's words should not be forgotten by the teachers- **"Arise, Awake and Stop not till the goal are achieved".**

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ROLE OF ICT IN QUALITY TEACHING

Sarab Tej Singh & Dr. Satish Kumar***

In our society, teaching is getting one of the most testing callings where information is extending quickly and a lot of it is accessible to students and educators simultaneously. As new ideas of learning have advanced, educators are relied upon to encourage learning and make it important to every pupil instead of just to give information and abilities. Latest improvements of creative advances have given new potential outcomes to showing calling and yet have put more responsibility on teachers and educators to figure out how to utilize these innovations in their teaching practice. In addition, nature of instructing has been raised by the advancement of new broadband correspondence administrations and assembly of media transmission with PCs. ICT is generally accepted to be significant potential factor to improve the teaching learning process and achievement of the students. ICT makes the teaching learning more effective interesting. As we know the use of ICT is constantly increasing worldwide, but still there is a need to aware the teachers and educators of under developing countries like India, about uses and benefits of ICT.

***Keywords**: ICT, broadband correspondence, computers, teaching learning, achievement.*

INTRODUCTION

In the time of globalization, the blast of advancements is affecting the world in more manners that can be envisioned. For instance, the manner in which ventures and economies are overseen have impressively changed. The quick transmission of information and data has empowered cross-fringe coordinated efforts to be all the more productively executed, along these lines permitting organizations to be run all the more effectively. Out-sourcing hence become increasingly pervasive and new economies, for example, those of China and India have succeeded thus. Innovation has encouraged and now and again caused change in perspective in the manner in which business used to be worked (Friedman, 2006). Inventive and basic speculation just as and critical thinking abilities are presently substantially more popular. Even with changing requests on the sort of human asset that ought to be created, teachers are likewise underscoring these new aptitudes in instructive curricular surveys. The utilization of data and correspondence advances (ICTS) in training is viewed as an approach to create an increasingly taught information based work power. The UNESCO World Education Report (1998) takes note of that the new innovations challenge customary originations both of instructing and learning and by reconfiguring how educators and students access information can possibly change instructing and learning forms. ICTs give a variety of incredible assets that may

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help in changing the present separated, instructor focused and message bound study halls into rich, understudy centered intuitive information conditions. ICTs are a differing set of innovative devices and assets used to convey, and to make, scatter, store and oversee data. Correspondence and data are at the very heart of the instructive procedure, in formal and non-formal settings, in programs gave by administrative offices, open and private instructive establishments, benefit companies and non-benefit gatherings, and common and strict networks.

DEVELOPMENT OF ICT IN INDIA

India perceived the significance of ICT in training particularly in 1984-85 when the Computer Literacy and Studies in Schools (CLASS) was at first presented as a pilot venture with the presentation of BBC small scale PCs. An aggregate of 12,000 such PCs were circulated to optional and senior auxiliary schools through State Governments. The task was therefore embraced as a Centrally Sponsored Scheme during the eighth arrangement (1993-98) and was enlarged to give budgetary awards to establishments which were given BBC Micros and furthermore to cover new Government Aided Sec. /Sr. Sec. Schools. Help included yearly upkeep award for BBC micros and buy just as support of gear for new schools.

2598 schools having BBC Micros were covered under the CLASS scheme during the 8th plan for providing instructors, maintenance of hardware, consumables and textbooks for students and training of teachers in schools. In addition, 2371 schools were covered with new hardware and services which included Rs.1.00 lakh for hardware configuration and Rs.1.30 lakhs per annum for recurring costs. Rs.0.80 lakh per annum was kept as the recurring costs for schools which had already been covered under the BBC-Micros scheme.

NIC was identified as the nodal agency for finalizing the contract for the supply of hardware. The use and supply of software was limited, coverage was confined to Sr. Secondary Schools and the students of class XI and XII had to undergo a Computer Course Module.

National Task Force on Information Technology and Software Development (IT Task Force) constituted by the Prime Minister in July, 1998 made specific recommendations on introduction of I.T. in the education sector including schools.

The concept of SMART schools with emphasis is on Information technology and use of skills and values considered important, in the next millennium, gained momentum to be started on a pilot demonstrative basis in each state, with the provision of Computer Systems to all educational institutions up to Higher Secondary/Secondary Schools by suitable investments (about 1-3%) of the total budget during the next five years, as per recommendations of the Task Force.

A centrally sponsored scheme "Information and Communication Technology (ICT) in School" was launched, in December 2004, to provide opportunities to secondary state students to develop ICT skills and for ICT-aided learning process as a major catalyst to bridge the digital divide amongst students of various socio-economic and other geographical barriers. The scheme provided support to State/UTs to establish computer Labs on a sustainable basis and aimed at setting up SMART schools in Kendriya Vidyalaya and Navodaya Vidyalayas to act as: "Technology Demonstrators" and to lead in propagating ICT skills among students of neighbourhood schools.

National council for teacher education (NCTE) took a landmark decision in the year 2000 to make ICT literacy a compulsory part of pre-service teacher education courses, producing and supplying a series of CD ROMS on, 'IT Literacy' to all teacher education institution in the country

and providing on-campus orientation of teacher educators in the workshop mode and in turn to produce every year over 2, 50, 000 teacher trainees conversant with ICT pedagogy to help improve quality of teacher education an through it the quality of teachers at different levels of schooling. It uploaded all its major publications on its website.

OBJECTIVES OF ICT

The various objectives of ICT in teaching and learning process are given below;

1. To make teaching and learning more easy and interesting.
2. To provides skills and techniques to the teachers.
3. To assist in searching for information, communication and the discussions between teachers and students.
4. To use as a tool in educational intuitions as an advisory and training measures.
5. To provide quality of teaching and learning with less stress to the lecture student.
6. To increase the level of learning motivation.
7. To improve the academic performance of students.
8. To provide easy access to subject matter knowledge.

QUALITY TEACHING AND ICT

Data and Communications Technologies (ICTs) are a different arrangement of mechanical apparatuses and assets used to convey, and to make, disperse, store, and oversee data. Correspondence and the data are at the very heart of the instructive procedure, thusly ICT-use in training has a long history. ICT has assumed an instructive job in formal and non-formal settings, in programs gave by legislative offices, open and private instructive foundations, revenue driven organizations and non-benefit gatherings, and mainstream and strict networks.

As per the definition, the job of ICT instruments is more extensive and has multidimensional and multifunctional task as it tends to be utilized to "convey", "to make", "scatter", "store" and "oversee" data on different levels—instructors students, educators the board, understudies the board, educators understudies organization, educators understudies open, and so on. The apparatuses and assets of ICT remember all current creations for the field of web, programming and equipment devices which are utilized to convey through satellites, PCs, cell phones, tablets and comparative gadgets and furthermore the old day devices like phone, TV and radio. It has upgraded the advancement in instruction part quickly. The vast majority of the establishments use it at its best to arrive at a wide assorted variety of social networks or open. ICT must turn into a need in the Indian schools differently spread over huge rustic geology, for what it's worth in the greater part of the European nations.

It is a test for the nation like India however can be accomplished. The present hon. Head administrator of India frequently discusses digitization of training framework and underlines the need of gifted labor creation from the instructive organizations advancing the world level computerized educating and learning. Numerous means have been and being sent right now University Grants Commission (UGC) and NAAC.

The way toward educating learning has become more understudy driven and its set point is to create gifted work-power. The conventional methodologies and techniques for instructing learning have seen a reformative change and its place is involved by ICT apparatuses, for example, online

shrewd sheets, projectors, PCs, android frameworks, PCs, online talks, tablets, PDAs, tablets, web assets and numerous other programming and equipment gadgets. Instruction satellites additionally have made its stake during the time spent educating learning and assessment; for example, India has propelled world's first training satellite called EDUSAT in 2004 to grant separation figuring out how to a huge number of Indians and have created virtual computerized study halls. The utilization of ICT instruments and assets is exceptionally expanded as of late even the fundamental centre is to advance such learning by coming to at each niche and corner of the nation. To execute this sort of instructing learning program, profoundly qualified and very much prepared labour is required and thus instructor training turns into an issue of the principal consideration (Arts, 2015).

It has been generally perceived that saddling the intensity of present day advances for learning purposes necessitates that fitting learning techniques be built up that orchestrate viability in learning with the innovation job. This acknowledgment supports the UfI/National Grid for Learning relationship, and a general enthusiasm for cultivating development in learning procedures.

ICTs give numerous chances to all the more effectively utilize an assortment of teaching methods. As an apparatus, ICTs can bolster educational or facilitative methodologies, coordinated effort and association across time and separation, enquiry or cross examination, open or shut research, lock step or mind-map. Online advancements backing and make simpler constructivist draws near, similarly as they make behaviorist methodologies simpler. The limit of ICT to convey data or to speak with a mass of understudies in very individual manners opens up the plausibility of fitting instructional method to the requirements of an understudy in time and spot without the confinements forced by peer gatherings. This gives the chance to programming that uses, for instance, various knowledge hypothesis (Ms, Dellit, and Secretariat, 2001).

Effective conveyance systems are a significant part of by and large school the board. ICTs can give the proficiency of conveyance instruments of instructive administrations by enhancing traditional conveyance systems:

(i) Technology's ability to arrive at students in wherever and whenever can possibly advance progressive changes in the instructive worldview. This implies taking out the reason that learning time approaches study hall time. Understudies can be urged to return to the exercises/themes to strengthen learning without dynamic intercession by educators.

(ii) Another delineation of productivity is the space of virtual labs. All educational systems need to give labs since science is observational. Be that as it may, barely any schools have outfitted them with gear and supplies and less yet are happy to chance utilizing them. Innovation takes into account video and computerized showings just as advanced reenactment of research facility exercises in an undeniable way – however without the dangers and expenses related with lab tests. Reproductions won't supplant hands-on movement totally. Or maybe, they set up the student to direct genuine investigations in a similar way as flight recreations set up the understudy pilot for test flying.

(iii) Multimedia-empowered learning modules can be created by a gathering of ace educators and instructional planners, which would then be able to be imparted to all schools to guarantee quality principles of learning conveyance.

(v) Concerns about expenses are constantly brought up in conversations identified with innovation. Contingent upon the innovation utilized, fire up expenses can be high however economies of scale are noteworthy. That is, the more the innovation is utilized for example

at the point when more understudies utilize the item, the unit expenses of creating instructive substance product decline proportionately. Exchange offs must be considered too while assessing innovation's underlying expenses (Arora, 2016).

CONCLUSION

From the above discussion it is very much clear that use of ICT in teaching learning process is very effective. It makes teaching more effective, interesting and long lasting. Use of ICT helps the students to learn in better way. It is also helpful in better achievement of students. India has been taking many steps towards implementation of ICT but still there is so much space for improvement.

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20

A REVIEW : ROLE OF INDIAN GOVERNMENT TOWARDS E-LEARNING

*Sunita Devi**

"Learning is more effective when it is active rather than a passive process", Kurt Lewin said. The rapid advancement of technology has greatly affected various aspects of society including e-learning. E-learning is an umbrella term that is used to describe a wide variety of electronic ways of teaching and learning viz., virtual classrooms, web-based learning, computer-based learning, digital collaboration, video and audio recordings, interactive TV and many more. Basically, video conferencing based, web based online program, self learning e-program/e-courses are three types of e-information service provider programs. E-learning (e-learning/e-learning/electronic learning) is a technology supported learning/ education. E-learning is suitable for distance education as well as for professionals. e-learning provides opportunity to professionals to enhance their skills. This paper proposes to answer two related questions. How do educational institutions within India structure their institutional provision of e-learning professional development? What training or other development opportunities are provided by Government of India to educationists? This paper is written on the basis of report of Press Information Bureau, Government. Of India (Ministry of Human Resource Development) The study includes Government of India's initiatives being run by the Ministry of Human Resource Development towards e-learning such as NDL(National Digital Library), SWAYAM (study webs of active learning for Young Aspiring Minds), SWYAM PRABHA, e-pathshala, Shagun portal, NROER (National Repository of Open Educational Resources), ICT in education curricula for school system, e-Pgpathshala, E-BASTA etc.The benefit of this technology has to reach the rural masses of India because e-learning technologies have great potential to spread learning. In future this will be the reason of digital divide in India.

Keywords: *e-learning, virtual classrooms, web based learning,*

INTRODUCTION

"Nothing is constant in this world other than the change" human kind has also undergone several changes since the old stone age. Of many factors contributing to this change, most prominent is advent of computers. It made our life simple. After that internet was conceived. With advent of this technology the whole world converted into a smaller village. Modern form of learning that is e-learning provides various opportunities to students as well as professional to access education through electronic media. Electronic learning is a method of learning which include text, media, voice, etc. It can be easily accessed from any place irrespectively of time. E-learning is an online teaching and

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learning and learning method which adopt with ICT, and deliver content through external driver or standalone system. The various mode of content delivers are online lectures, notes, videos, images, texts etc… as mention above e-learning educate students with the course that are fully enriched with multimedia content. It provides self assessment tasks and quiz,…….E-learning as became part of daily learning cycle of this generation. E-learning enables tutors to deliver their knowledge in various forms and in different platforms. Mahdizadeh *et al*. (2008). In India many educational institutes started concentrating more on technology enhanced teaching and learning process. Government also taken many initiations by spending recourse and amount to improvise it infrastructure to making things digitized.**"**E-learning platforms are bringing a measurable difference in students' engagement and performance. It is reducing gaps in the delivery of education and giving a new dimension to the education space," Pearson India Managing Director said.

TYPES OF E-LEARNING

There are two types of e-learning. Asynchronous and Synchronous. Asynchronous e-learning is commonly facilitated by media such as e-mail and discussion boards, supports work relations among learners and with teachers, even participant cannot be online at the same time. It is thus a key component of flexible learning. On the other side, synchronous e-learning, commonly supported by media such as videoconferencing and chat, has the potential to support e-learners in the development of learning communities. Learners and teacher experience synchronous e-learning as more social and avoid frustration by asking and answering questions in real time (Stefan Hrastinski, 2007)

REVIEW OF LITERATURE

Growth of E-Learning in India

According to to a latest report, the Indian e-learning market size as USD247 million, comprising 1.6 million users in 2016. It is expected witness an eight times growth to reach USD1.96 billion and the current user base will grow at 44 percent CAGR TO 9.6 million by 2021. In fact, India's e-learning market is the second largest after the US which is foretasted to grow by 15.64 percent and exceed $48 billion by 2020.(KPMG in India Analysis Report, 2017).

Future of E-Learning

According to Vijay Pothula CO-FOUNDER & COO-EdSesnse, for Elets News Network (ENN) "By 2030, global education and training expenditure is set to reach at least $10 trillion. Here is a glimpse of emerging trend that will transform education sector in 2019". (www.productleadership.com, 2019) 2019 was the year of video based learning. It was the most scalable and democratic as an education medium. It is affordable, accessible and leads to higher retention levels. According to Psychology Today, "The human brain processes videos 60,000 times faster than text". This is leading to 'Micro Learning'. This is a concept where bite sized videos with succinct information are shown to learner. When learners are exposed to information in short bursts repeatedly, they grasp concepts quicker, leading to amazing learning outcomes. According to KPMG, the Indian online education industry will touch $1.96 billion by 2021.

Continuous Demand from Educational Society

Educational institution want their employees to be updated with technology and other professionals skills to compete the educational industry. So, they choose to adopt e-learning methods for enhancing the personnel skills and reduced training costs.

METHODOLOGY

The study discussed the growth of e-learning in India, continue demand of e-learning from educational society, Government of India's initiatives towards e-learning and future of e-learning. This article contains useful information for future research on electronic learning. **According to Arlene Fink (2005, Sage Pub.), Literature Review is "a systematic, explicit, and reproducible method for identifying, evaluating, and synthesizing the existing body of recorded work produced by researchers, scholars, and practitioners." The Literature review provides the collaborative method of data on initiation of Government of India in implementing Electronic Learning.** Details from newspapers, official websites of Government Initiatives such as SWAYAM, E-BASTA, SWYAM PRABHA, e-pathshala, Shagun portal, NROER (National Repository of Open Educational Resources), ICT in education curricula for school system, e-pgpathshala, e-pathshala NDL (National Digital Library) and PIB (Publication Bureau of India) are also used for literature review.

E-LEARNING INITIATIVES BY GOVERNMENT OF INDIA

India has a formal multi-layered education system with ~260 million students enrolled in 1.5 million schools and ~39000 colleges catering to 27.5 million under graduates and four million post graduate students."E-learning industry in India is a prolific one, witnessing a growth rate of 28 percent year on year and is projected to be a & 1.96 billion industry by 2021."(BUSINESS WORLD, 2018)

Swayam

The 'Study Webs of Active Learning for Young Aspiring Minds' an integrated platform for online courses, using information and communication technology and covering (9^{th} to 12^{th}) school to post graduate level. It may be accessed on swayam.gov.in. The NIOS (NATIONAL INSTITUTE OF OPEN SCHOOLING) is promoting education through massive open online courses (MOOCs). There are 44 courses of NIOS offered on SWAYAM platform-14 at secondary level, 16 at senior secondary level, 4 vocational courses and 10 courses of Diploma in Elementary Education. The initiative aims to "bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy", Mr. Pranab Mukharjee said (former President of India,2017).(FINANCIAL EXPRESS,2017)

National Digital Library (NDL)

The National Digital Library of India is a project develop a framework for repositories (virtual) with a single window search facility more than 153 lakh books available on this platform. It can be accessed through ndl.gov.in. The amount spent on e-education projects during the financial year 2015-16 to 2018-19 are as follows:

(Rs. In crore)

SN NO.	NAME OF SCHEME	2015-16	2016-17	2017-18	2018-19
1	SWAYAM PROJECT	52.00	61.00	63.07	44.97
2	e-pathshala, NREOR, MOOCs (SWAYAM)	1.9	2.17	3.01	1.39
3	e-learning by NIOS	0.77	0.69	0.81	0.50

Source (pib.gov.in)

NROER (National Repository of Open Educational Resources)

It is initiated by the Department of India and managed by the Central Institute of Educational Technology. The repository is bring together two type of re-courses digital and digitized.13635 files including 401 collections,2722 documents,565 interactive, 1664 audios, 2581 images and 6105 videos have been made available over the portal. States are motivated to contribute resources on NROER and create OERs for their own State/UT.

e-PG Pathshala:A Gateway to Post-Graduate Courses

e-PG Pathshala is an initiative of of the MHRD under its National Mission on Education through ICT (NME-ICT)e-PG Pathshala is an initiative of the MHRD under its National Mission on Education through ICT (NME-ICT).it is a gateway of all post graduate courses. The content and its quality is key component of educational systems, high quality, curriculum based interactive e-content in seventy subjects across all disciplines of social sciences, arts, fine arts, humanities and natural & mathematical sciences.

Current status of e-Module development:

Subjects	Papers	e-text	Self-Learning (videos)	Quizzes	Experts
70	723	20000+	19000+	30000+	3200+

e-adhyan(e-books)

e-adhyayan is a platform to provide ~700 e-books for the Post-Graduate courses. All the e-books are are derived from e-PG Pathshala courses. It also provides play list of video content.

UGC MOOCs (Online Courses)

UGC MOOCs is one of the vertical to produce course on Post graduate subjects in SWAYAM (INITIATIVE BY MHRD). UGC is one of the national coordinator of SWAYAM & INFLIBNET is technical partner of UGC-MOOCs.

e-Pathya

e-Pathya is one of the vertical of e-PG Pathshala which is software driven course/content package that facilitates students pursuing higher education(PG level) in distance learning as well as campus learning mode. It also facilitate offline access.

Shagun Portal:

Shagun is a web portal it is derived from combination of two words Shaala and Gunvatta. Which has two parts, one of which is a repository of good practices, photographs, videos, studies, newspaper articles etc. On school education state/UT wise has been developed which is in public domain. Its purpose is to showcase success stories and also to provide a platform for all stockholders to learn from each other. This also instills a positive competitive spirit among all the States and UTs.

SWAYAM PRABHA

A programme for utilization of satelliite communication technologies for transmission of educational e-contents through 32 National Channels i.e. SWAYAM PRABHA DTH-TV has been launched. CIET-NCERT is the national DTH TV channel i.e., Kshore Manch (#31)and has started feeding a 24x7 educational TV channel w.e.f.09.07.2018. Everyday four hour fresh slot is telecast

and repeated 5 more times in 24 hours to provide learning opportunities for the stake holders, as per their convenience. Besides, NIOS is running 5 channels for teachers, for secondary and senior secondary levels and for sign language.(PIB.GOV.IN,2018)

Vidya-mitra: Integrated e-content Portal

This is an online learning learning portal for all the e-content projects developed under the NME-ICT (National Mission on Education through ICT), MHRD. Vidya-mitra hosts 44,450 e-texts, 66174 video and 37827 other recourses. A mobile app is also available for android and Apple the centre has acquired content from more than 50 principal investigators that was distributed on different locations.(PIB.GOV.IN,2018)

CEC (Consortium for Educational Communication (CEC), New Delhi)

CEC has one of the repositories of digital educational content in the country. Its e-content repository includes more than 40,000 video programs, 24,000 e-contnt modules.(CEC,2019**)**

NCERT-ePathshala

The ePathshala, a joint initiative of MHRD, Govt. of India and NCERT (National Council of Educational Research and Training) is developed for showcasing and disseminating al educational e-recourses including textbooks, audio, video, periodicals, and a variety of other digital resources….(NCERT,2019)

e-Gyankosh

e-gyankosh is a national digital repository of education material that stores, indexes, preserves, distributes and shares the digital learning resources developed by the Open an Distance Learning Institutions in the Country. The repository hosts entire catalogue of courses offered by IGNOU is available with full- text content for free download. (IGNOU,2019)

e-BASTA

In line with the government's Digital India initiative, this project has created a framework to make school books accessible in digital form as e-books to be read and used on tablets and laptops. The main idea is to bring various publishers (free as well as commercial) and schools together on one platform. In addition to the portal, a back-end framework to facilitate the organization and easy management of such resources has also been made, along with the web based applications that can be installed on tablets for navigating the framework. Single platform for teachers, students and publishers.(e-Basta,2020)

Following features of e-Basta are:

- **Students** Identify bastas of interest and download
- **School/Teachers** Browse content, pick what suits, organize into bastas
- **Publishers** upload & manage content in the portal
- The eBasta App, down loadable from the portal, runs on any Android smart device

DISCUSSION

India has a major role to play in the area of e-learning at the international level. It is already one of the leading information Technology service providing country. The government has been taking some proactive measures in a regulatory and financial capacity to boost the e-learning environment in India.

CONCLUSION

Thus, e-learning working as a bridge between education and lifelong learning. E-learning with its new dimensions in education provides new opportunities to professionals and students for skill enhancement. The timing has never been better for using technology to enable and improve learning at all levels, in all places, and for people of all backgrounds. From the modernization of E-rate to the proliferation and adoption of openly licensed educational resources, the key pieces necessary to realize best the transformations made possible by technology in education are in place. Educators, policymakers, administrators, and teacher preparation and professional development programs now should embed these tools and resources into their practices. Working in collaboration with families, researchers, cultural institutions, and all other stakeholders, these groups can eliminate inefficiencies, reach beyond the walls of traditional classrooms, and form strong partnerships to support everywhere, all-the-time learning. With the effective learning system, India can successfully utilize its vast human resources, and by that the dream of our youngsters hero, "Dr. A.P.J. Abdul Kalam" dream of India 2020 will get success.

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DIGITIZED REVOLUTION IN MARKETING - ITS UPCOMING TRENDS, CAREER CHALLENGES AND RESOLUTIONS

Manjit Kaur & Er. Raghubir Singh***

Advanced advertising is ascending with quick pace. Several organizations are utilizing digital marketing trends for upper hand. Accomplishment of advertising effort cannot be exclusively achieved by computerized marketing as it was or may be for achievement of any promoting effort. It ought to completely saddle the abilities of different advertising methods accessible inside both the conventional and marketing trends. New businesses who utilize advanced digital and electronic marketing services and features commonly are flourishing expedite [1]. This paper will be covering the new upcoming trends in the epoch of digital marketing, various challenges associated with it and their possible solutions. Digital marketing is one of the most sophisticated and growing industry at the moment and is providing global platform to the millions of business owners to widen the horizons of their respective businesses and to generate multifold return on their investments.

Keywords: *Digital marketing, search engine optimization, artificial intelligence, programmatic approach, chat-bots, conversational marketing, electronic multimedia marketing.*

INTRODUCTION

Digital marketing is the marketing of items/services utilizing advanced technologies over the electronic communication networks on the Internet, through cell phone applications and some other computerized mediums. Digital advertising channels are frameworks dependent on the internet that can make fasten and transmit orders with incentive from maker to a purchaser terminal, through innovative systems.

The advancement of digital marketing, during the 1990s and 2000s, changed the manner in which brands and organizations use earlier originated marketing [4]. As advanced stages turned out to be progressively fused into promoting plans and regular life [5], and as individuals progressively utilize computerized gadgets they opposed to visit physically to shops [6] [7]. Digital and Electronic advertising efforts have gotten pervasive, utilizing mixes of site improvement (SEO), web crawler advertising (SEM), content promoting, influencer marketing, content robotization, campaigning, information driven marketing [8], online business driving, internet based promotions, web based streamlining, email direct marketing, digital publicizing, electronic books and games have gotten typical. Computerized advertising even broader out to non-Internet stations that give advanced

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media, for example, TV, cell phones (SMS and MMS), and on-hold mobile ring tones [9]. The expansion of non-Internet conduits separate digital marketing from web based advertisings.

TOP DIGITAL MARKETS TRENDS THAT WILL BLOW OF THE MARKET SOON

With the tremendous advancement in the area of Information technology in the past couple of decades, more and more urbane strategies are evolving out in support to flourish the businesses at global scale at economical cost. In this lieu, many trends in digital marketing are grooming and expanding their existence over the market space. Few of the top most digital market trends are studied as below:

1. Artificial Intelligence: The Fastest Growing In Industry: Year 2020 will be the year that many individuals wake up to the strength of artificial intelligence (AI). It is certain to be at the core of worldwide business and industry later on and as of now, taking over numerous basic occupations. For an instance, Microsoft and Uber use Knight scope K5 robots to "watch parking areas and huge open-air regions to foresee and forestall wrongdoing. The robots can peruse tags, report suspicious movement, and gather information to answer to their proprietors." R2-D2-like robots can be leased which is more affordable than a human security watchman's compensation [3].

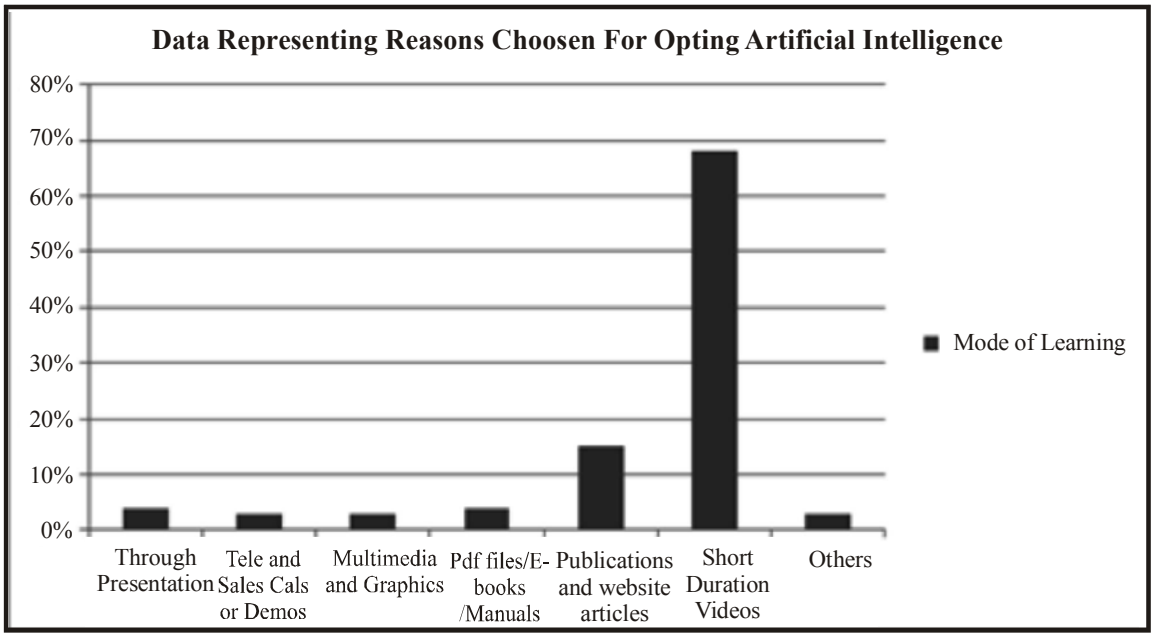
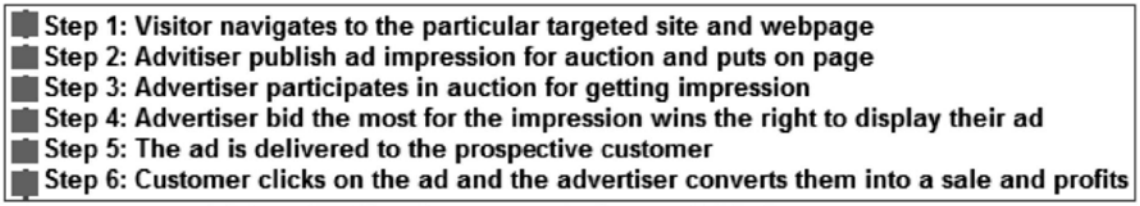


Fig : Various Reasons for opting artificial intelligence

As per *Techgrabyte,* "Man-made intelligence / barinpowers is the greatest source that opens door for business organizations, enterprises, and countries throughout the decades and will increment worldwide GDP by up to 14% among now and 2030" [3].

2. Programmatic Publicizing: The Digital Marketer: Programmatic advertising implies utilizing AI to computerize advertisement and purchasing, so, the publicist can target progressively explicit crowd. Constant offering, for instance, is a kind of automatic promotion purchasing. This

mechanization is considerably more proficient and quick, which implies higher transformations and lower client obtaining costs [3]. It is changing the essence of computerized promoting so quickly that, as per eMarketer, 86.2% of advanced presentation advertisements in the U.S. will be automatic by 2020 [3].



Elaboration How Prorgammatic Approach Works

3. Chat-bots: The Digital Customer Care Executive: Chat-bots will keep on being a significant piece of advanced advertising in 2020. This AI-based innovation utilizes texting to talk progressively, day or night, with clients or site guests. Survey depicts that Chat-bots will self-control 85% of customer care by 2020. Top advantages of chat-bots are 24-hour administration, moment reactions to requests, and answers to straightforward inquiries. 80% of organizations need chat-bots by 2020 [3]. Numerous clients incline toward communicating with chat-bots as they are responsive every minute of every day, and they have to offer responses instantly, precisely review client's whole purchasing history, and never become irritated. These menial aids offer exceptional client assistance by living up to clients' desires and robotizing tedious assignments – which implies that one can concentrate on increasingly significant work. Travelers can utilize the application to pick the kind of ride, make a solicitation, track the area of the vehicle, send companions a period gauge of their appearance, and make installment. Different brands that are effectively utilizing chat-bot innovation incorporate Whole Foods Market, Fandango, Sephora, Staples, The Wall Street Journal and Pizza Hut [3].

4. Conversational Marketing: Digital Counseling: In contrast to conventional systems, this type of promotion is presently accessible over various channels, permitting brands to meet clients on their terms using the gadgets, stages and time plans that suit the client best. According to David Cancel, author and CEO of Drift: "The present purchasers hope to discover what they are searching for the time being, not later and in future, it will be a higher priority than at any other time for organizations to be accessible over a wide range of channels, and to ensure purchasers imparting the manner in which individuals like to convey." At last, the essential objective of conversational marketing is to upgrade the client experience through an input-driven model that encourages higher commitment and more prominent devotion.

5. Personalizing Digital Marketing: To hang out in 2020, one has to customize and personalize marketing and that implies customized content, items, messages. Considering these personalization details: 63% of customers are profoundly irritated with conventional publicizing impacts and around 80% state they are bound to work with an organization on the off chance that it offers customized encounters. Approximately, 90% cases discover personalization engaging. Kevin George from Email-Monks declares that "customized, activated messages dependent on conduct are 3x superior to bunch and-impact messages." At the point when it is needed to consider instances of the intensity of personalization, it's difficult to disregard examples like Netflix and Amazon, with their

custom-fitted suggested items or motion picture titles.

Many companies are now propelling an information-driven email battle that uses clients' movement history with the aircraft to assemble customized stories, which at that point recommend where they may get a kick out of the chance to go straightaway. About 12.5 million one of kind messages has been sent, which had a 25% higher active clicking factor than non-customized messages taking an example of EasyJet [3].

6. Video Marketing- The Most Significant Trend In Digital Marketing: Video advertising is one of the most significant marketing pattern today and likely for the following 5-10 years. These numbers show the significance of fusing video in computerized promotion techniques in 2020. Video is the most well-known way clients need to find out about new items. Next to that considering social media such as YouTube, there are a lot of approaches to drive higher commitment with your video promoting, as promoters can make a video post or start a live to communicate on social media platforms such as Facebook, Instagram or LinkedIn further. One of the issues that advertisers have looked as of late is the developing movement to cell phones. Those long-structure deal pages and messages of days gone by are blurring quick, since they are just too hard to even consider reading on little mobile screens. In any case, video can show similar data in an arrangement that works consummately paying little heed to the gadget. In the event site incorporates video, it is 50X almost certain (multi-folded) to drive natural list items contrasted with content. Since individuals discover video content all the more convincing, so Google pushes such pages that incorporate recordings higher in the rankings. Probably the best thing about video marketing is that it makes it simple to reformat promoters' content at their own convenience such as transfer the video with the translation as captions to other supporting social medias like Facebook (local Facebook recordings get a lot higher impression offer and commitment than shared video recordings). Apart from that, transforming the translation into an independent blog \ website article with a short change and expansion of significant details and enriching pictorial presentation. Another way is ripping the sound alone and use it as a digital broadcast serial. Using click bait video thumbnails in email marketing is also an appreciable effort in this regards.

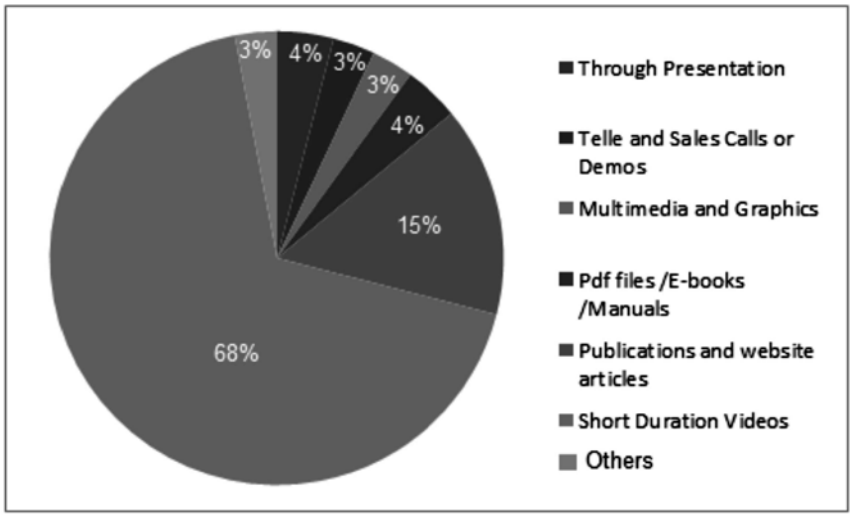


Fig: Ways people prefer to get familier with upcoming products and services

Here are some other video advertising patterns that are increasing their more footing like:

- ***Live Video Streaming:*** It is especially famous with numerous organizations that use it for interviews, item demos and off-camera looks at the brand, life at the workplace, how items are made, organization occasions, and so forth [3].
- ***One-to-one (1:1) Video:*** It occurs when organizations or advertisers make customized video messages as opposed to make calls or send messages. With the diminishing expense of film hardware and progressively excellent cell phone cameras, this is simpler than at any other time [3].
- ***Video Search Engine Optimization*- SEO:** YouTube and different recordings are shown in the search engine result pages (SERP), so video advancement is getting considerably more significant like utilizing content overlays and shut subtitles, notwithstanding your depiction, title and document names [3].
- ***360-degree Video Content for maximizing coverage:*** This pattern towards an increasingly intelligent encounter is on the ascent simply search for the roundabout brand in the upper left corner to begin sliding the moving picture left or right as it is playing, similar to this 360Ú video from Hong Kong Airlines. This is not the same as augmented reality.

DIGITAL MARKETING CAREER CHALLENGES AND RESOLUTIONS TO THEM

1. **Quantity vs. Quality Referral Trade-off**: One of the top vocation challenges a digital advertiser faces today is having the option to align viable referrals to the brand's site. One needs brand purchasers to tap on advertisements, social posts, and other online media and make an attempt to move site.

This is not in every case simple in a serious advanced space [2]. However, one can make the odds of getting click-through to the site higher by tweaking promotion and social trends duplication to guarantee invitations to take action in a short, sharp and unmistakable manner involving customers.

2. **Creating and Redirecting Traffic:** Identified with creating persuasive web referrals to the selected site, an advanced advertiser faces the burden of producing traffic and indeed this is the main concern as it takes lots of parameters to rank a site. This is not quite the same as a referral as one needs to recognize the most proficient path for pushing individuals to the targeted site with a referral.

Creating traffic alludes to the general number of people who are going to intended site and to what extent they are remaining [2]. By expanding the traffic to site, one can increment the plausibility of persuading that shopper needs to purchase something. How it being accomplished? It needs to post the RIGHT substance (in terms of content, quality, quantity relevance) as the one is going to be accountable for that.

3. **Practicing and Creating Unmatched Videos:** Advertiser needs to meet shopper's expectation with the sorts of information they need to see. That implies web journals and customary stories are going to assume a lower priority. That is on the grounds that the top method to pull in buyers in 2020 will be by means of video both emotive, inscribed, short recordings and live recordings via web-based networking media.

So in case it is not the present approach to figure out how to be a video master, at that point one have to take a course or look over concern [2]. Video as the top substance for advanced advertisers is just going to rise and that is for sure.

4. **Considerable Brainstorming for Investing Further Into Brand**: Advanced advertisers

are innovative individuals. They like to plan for an impressive future picture and advanced structure battles that are going to "amazing" shoppers and cause them to feel something substantive toward the brand. In principle, this prompts a deal. Be that as it may, the other, increasingly muddled job of a computerized advertiser is to tie down enough cash to send an incredible campaign effectively. To do this, one have to gain proficiency with the strategies for persuading the higher-ups and one require more cash to pull off advanced battle.

Digital resources are not modest and the ascent of video will keep on boosting the up-front investment for an advanced movement. Yet, it requires planning to figure out how to put forth defense, demonstrate point and be unafraid to request a lift in financial limit [2]. How it may happen? Concentrating on information from campaigns and illustration by means of information that there is an arrival on venture or Return on Investment (ROI) for the dollars spent.

UPDATING AND STAYING TUNED WITH LATEST TRENDS

A computerized advertiser continually should be deft with regards to coordinating the structure and cu-ration of substance on the brand's site [2]. The genuine activity of transferring content and making it may not be only activity, yet the system behind the site should be the main activity, and that is also challenging in itself.

That is on the grounds that the brand's site is the door for the buyer to comprehend the organization and to choose on the off chance that the person needs a relationship. On the off chance, that the site is excessively moderate in performance, one hazard losing the client. In the event that the buyer utilizes smart gadgets to peruse site content as most buyers do nowadays and site is not improved for portable, will likely baffle client and send the person away. At long last, on the off chance that site is not upgraded through SEO or website streamlining rules, at that point webpage may not appear in list items.

PRIORITIZING THE CUSTOMERS NEED AT TOP

With so much online challenge out there for client's consideration, marketer must be eager to think "client first." One way to address prospects need is by means of email and social automation. These are two of the least costing ways to attract the client first. Robotized email set up is the most effective [2].

Another way brands have been robotizing client care is by means of social media. Southwest Airlines, for instance, has gained notoriety for itself in tending to issues in air through Twitter. Be over the client's interests by means of advanced promoting endeavors, and goals will be nearer to helping brands perform in competitor's sphere.

SCRUTINIZING AND SELECTING TECHNOLOGIES AND PLATFORMS

At last, there are new environments that support digital marketing efforts which may promise to take business to new advance levels. Also, it will reliably observe these and be enticed to attempt them all. It is the matter of observation how the live streaming video had performed and ranked. On the off chance that one may not gauge alternatives cautiously and allow new applications to act in the market will result the brand submerged on the off chance, seeking all the options. A decent method to do this is to set up news cautions by means of platforms like Google Alerts. This should always be the prime concern to keep up on patterns and gauge the upsides and downsides of new innovations and environments decided to be implemented. Additionally, a simple apparatus called

Growthverse. is free and user-friendly tool that shows the full scene of devices accessible that could help illuminate specialty issues of the concerned campaign [2].

CONCLUSION

Undoubtedly, upcoming trends such as artificial intelligence, chat bots and revolutionary changes in marketing are ready to transform this era. However, some challenges cannot be ignored. For an instance, The qualitative approach will be marginally extraordinary for each brand, however one can figure out what is the best-performing content on targeted site by doing a basic investigation examination and auditing the competitor's site and pull the information from the most recent 30 days of traffic on targeted site, taking a gander at top-performing blog entries, the most-clicked stories or photographs, referrals and the kind of substance (duplicate, photograph, video, social, and so forth). In the event that information is not comprehended it will not impact the traffic. Therefore, it is necessary to address such issue because newly emerging digital trends may significantly improve the marketing campaigns by giving priority to customer needs and satisfaction. As a digital advertiser, one must filter through the weeds and slice through the clamor to distinguish the best advancements that can support brand. Now and then that implies counseling with confided among associates and specialists in the business. It additionally denotes one should always be in a teachable mode of patterns and make an everyday propensity for perusing refreshes in the business. Hence, while looking for a room for improvements, customer interests should be considered as a prime factor to enhance their satisfaction and thereby leading towards success.

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GOOGLE CLASSROOM AS AN E-LEARNING TOOL

*Dr. Palwinder Kaur**

Acknowledging education as a tool for social change makes it pertinent to incorporate changes in the methods of dissemination of knowledge to keep up with the emerging trends in all sectors of life. According to a report by the World Bank, disparities in the levels of Information and Communication Technology (ICT) readiness and use could translate into disparities in level of productivities and hence could influence a country's rate of economic growth. Understanding and leveraging ICT is therefore critical for the countries striving for sustained social and economic progress. Hence, Information and Communication Technology (ICT)-based resources if used in educational institutions can facilitate students to be acquainted, familiarised and skilled in such tools and environments. Such kind of methods enhances use of ICT in education, and creates an easy to manage learning environment where the dissemination of knowledge is smooth and easy. The present paper gives an overview of e-learning through Google Classroom. The main focus of this paper is to analyse the pros and cons of Google Classroom as a tool of e-learning.

***Keywords**: Google Classroom, e-learning, Information and Communication Technology (ICT).*

INTRODUCTION

Information and Communication Technology (ICT) is universally acknowledged as an important catalyst for social transformation and national progress. However, disparities in the levels of ICT readiness and use could translate into disparities in level of productivities and hence could influence a country's rate of economic growth. Understanding and leveraging ICT is therefore critical for countries striving for continued social and economic progress.

Information and Communication Technology (ICT) in education can be defined as "diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information." These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephone communication (Thamarana, 2015). It should be understood that information and communication or ICT singularly does not generate learning. Rather, it is a tool that can be effectively utilised to enhance, improve and complement learning-skills already in use that is the conventional methods of pedagogy that have been used so long (*Das, 2012)*.

OBJECTIVES OF THE STUDY

The main objectives are:

1. to give an overview of Google Classroom as an e-learning tool

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2. to highlight the pros and cons of Google Classroom, and
3. to provide suggestions for effective usage of Google Classroom

RESEARCH METHODOLOGY

The present paper is theoretical in nature. Secondary data sources have been used to provide a thorough description of the above mentioned objectives of the study.

I. GOOGLE CLASSROOM-AN OVERVIEW

In order to cater to the changing needs of the 21st century learners, a paradigm shift in the methodology of teaching is required. One such innovative methodology is the use of learning management systems (LMS), which provide a blended learning experience. One such learning management systems ((LMS) is Google Classroom. Google Classroom is a freely available LMS and is part of Google Apps for Education. It allows teachers to connect with learners online. Anyone with a Google account can use this service. Teachers can create and manage online classes, upload study material, create and grade assignments, and share feedback and grades. Students can use this service to access and use learning material, interact with the teacher and other learners, submit their assignments and receive feedback and grades. Administrators can create multiple classes in their domain, assign teachers and students to these classes and keep track of the work in the classes their domain (Philipose and Rajagopal). Iftakhar (2016) mentions the following benefits of Google Classroom:

- A single access point to discussion threads and assigned work.
- A single programme to store all students' work in a paperless format.
- A tracking mechanism to identify students struggling with assigned tasks.
- Simplified grading features.

Since it is free and accessible to anyone with a Google account, Google Classroom is an easily available resource for teachers who want to follow a blended learning approach in their teaching.

II. THE PROS AND CONS OF GOOGLE CLASSROOM

Google Classroom is an ambitious addition of Google to online education as well to the Learning Management System **(LMS)** industry and a breakthrough in e-learning. It aims to make classrooms all over the world not only paperless, but also more effective. **Presently,** it is aimed at academic institutions only. It has made the teaching-learning process easier. When we it comewe try to analyse this App comprehensively, it consists both pros and cons in the same way as every coin has two sides. The pros and cons of Google Classroom are mentioned below:

PROS OF GOOGLE CLASSROOM

Easily Accessible and Usable

Google Classroom is easily accessible and usable. Even if you are not a Google user, using **Google Classroom** is a piece of cake. Apart from being delivered through the Chrome browser, which makes it accessible from all computers, mobile phones, and tablets, it makes it really easy for you to add as many learners as you like, create Google documents to manage assignments and announcements, post **YouTube** videos, add links, or attach files from Google Drive. Learners also find it easy to log in, as well as receive and turn in assignments.

Effective communication and sharing

One of the greatest advantages of Google Classroom is Google Docs. These documents are saved online and shared with a limitless number of people, so when an announcement or assignment is created using a Google doc, learners can access it immediately through their **Google Drive**, as long as it is shared with them. Furthermore, Google Docs are easily organized and personalized in Google Drive folders.

Speeds up the assignment process

Google Classroom has made the Assignment process super easy. Assignment process has never been as quicker and effective as in Google Classroom. It helps you to easily check who has submitted their assignment and who is still working on it, as well as offer your **feedback** immediately.

Effective feedback

Speaking of feedback, Google Classroom gives us an opportunity to offer your online support to our learners right away. This means that feedback becomes more effective as fresh comments and remarks have bigger impact on learners' minds.

Helps to Be Paperless

In Google Classroom, by centralizing eLearning materials in one cloud-based location, one can go paperless and stop worrying about printing, handing out, or even losing your learners' work.

Clean and user-friendly interface

Staying loyal to clean Google layout standards, Google Classroom invites us to an environment where every single design detail is simple, intuitive, and user-friendly. Needless to say, Google users will feel right at home.

Great commenting system

Learners can comment on specific locations within pictures for a variety of online courses. Furthermore, URLs can be created for interesting comments and using them for further **online discussion**.

Inclusive in nature

Educators can also join Google Classroom as learners, which mean that you can create a Google Classroom for you and your colleagues and use it for faculty meetings, information sharing, or **professional development**.

Has reshaped learning

Google Classroom possesses features and programs commonly used in the workplace, which allow learning and practicing soft skills. It helps to improve the quality of teaching as well as of learning.

CONS OF GOOGLE CLASSROOM

Difficult account management

Google Classroom doesn't allow access from multiple domains. Furthermore, you cannot log in with your personal Gmail to enter it; you need to be logged in Google Apps for Education. As a result, if you have already a personal Google ID, it may be frustrating to juggle multiple Google accounts. For example, if you have a Google document or a photo in your Gmail and you want to

share it in the Google Classroom, you will need to save it separately in your computer's hard drive, log out, and then log in again with your Google Classroom account.

Too "googlish"

First time Google users may get confused, as there are several buttons with icons familiar only to Google users. Additionally, despite enhanced integration between Google and YouTube, which significantly helps video sharing, support for other popular tools is not built in, and you may find it frustrating that you will need to, for example, convert a simple Word document to a Google Doc to work with. All in all, you will only find yourself comfortable in the Google Classroom environment as long as the tools you are using are aligned with Google services.

No automated updates

Activity feed doesn't update automatically, so learners will need to refresh regularly in order not to miss important announcements.

Difficult learner sharing

Learners cannot share their work with their peers, unless they become "owners" of a document, and even then they will need to approve sharing options, which will create a chaos if they want to share a document with their fifty plus classmates.

Editing problems

When you create an assignment and you distribute it to learners, learners become "owners" of the document and they are allowed to edit it. That means that they can delete any part of the assignment they want, which could cause problems, even if it happens accidentally.

No automated quizzes and tests

One of the main reasons that Google Classroom cannot yet fully replace your Learning Management System is that it doesn't provide automated quizzes and tests for your learners. In general, Google Classroom is more suitable for a blended learning experience than a fully online program.

Impersonal

Speaking of a blended learning environment, Google Classroom has not integrated Google Hangouts, which creates a problem; online interaction between teachers and learners is only possible through Google documents. Effective education requires interaction and building relationships with learners, and **online discussions** are the best way to achieve this in a virtual environment. Unfortunately, there is no way to have a live chat in Google Classroom; at least, again, not yet.

III. SUGGESTIONS FOR EFFECTIVE USAGE OF GOOGLE CLASSROOM

Technology based learning and assessment systems help to improve student learning and generating data that can be used for continuous improvement of education system at all levels. Google Classroom can play an effective role is this context. Google classroom can save time and paper, distribute tasks, and communicate regularly. Educators can create assignments, send announcements, and start class discussions instantly, because students can share resources with each other and interact in Google Classroom or via email. It also provides a high level of satisfaction, and the enthusiasm of students becomes higher (D A Fitriningtiyas' et al, 2019).

Google Classroom has become popular among educators all over the world and it is continuously being updated. These technological updates need us to update ourselves. There are some recent

features of Google Classroom that can prove a great help in teaching learning process. By using these features, we can touch the new heights in technology driven education system. We can consider the following point to make an effective use of Google Classroom:

Training of the Teacher

It is the most important for effectiveness of Google Classroom. The teachers should be well-versed with all the necessary features of Google Classroom so that they can easily handle this method of teaching. Training of the teachers is must for the successful use of Google Classroom.

Internet Connectivity and Access

Another important and crucial point is the internet connectivity and accessibility. Internet should be easily accessible and must have a good connectivity. This is the pre-requisite for successful usage of Google Classroom.

Communication with parents and guardians

Google Classroom can be used to keep parents and guardians in the loop. We can invite parents to sign up for a daily or weekly email summary about what's going on in the classes of their wards. The emails include a student's upcoming or missing work, as well as announcements and questions posted by you in the class stream.

Google Calendar to help the students to stay organized

Google Classroom automatically creates a Google Calendar for each class and updates the calendar with students' upcoming work and due dates. Students can also see events like test dates and field trips. The calendar view makes it easier to stay on track and since new assignments or altered due dates are updated automatically.

Assign work to a subset of students.

An educator/teacher can assign work and post announcements to individual students or to a group of students within a class. This functionality allows teachers to differentiate instruction as required, as well as support collaborative group work.

Use annotations with the Classroom mobile app

The Students and teachers can use the Classroom app on Android, iOS, and Chrome mobile devices. Teachers can provide real-time feedback by annotating student work in the app. Students can also annotate their assignments to more easily express an idea or concept.

Explore Classroom integrations with other tools.

Google Classroom uses an Application Programming Interface (API) to connect and share information with many of your favorite tools. Hundreds of apps and websites integrate, including Pear Deck, Actively Learn, Newsela, and many more. All this can explore something new to the students and teachers.

CONCLUSION

Google Classroom is a major breakthrough in ICT being used for educational purpose. It is easy to use and can be beneficial for those who are still hesitant to use e-learning as a method of teaching because of limited ability to use technology. Google Classroom saves time of educators in assigning assignments to the students and make it easier for them to keep a record of them . It is flexible in the sense that this application is easy to access and can be used by educators/teachers and students both in face-to-face learning or online learning. Furthermore, Google Classroom can be

used by anyone and it's free just by registering using a Gmail account to be able to open the class. These applications of Google Classroom can also be used on mobile devices making it easily accessible. Several studies conducted on the use of Google Classroom as an e-learning tool advocates its use for reshaping learning in present era where new forms of industries and new types of jobs are emerging, requiring future personnel to be well equipped to meet the need of the expansion requirements of these industries and keep up with their development needs. Google Classroom can prove to be helpful by improving the soft skills of the students as per the requirement of today.

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ROLE OF ICT IN QUALITY TEACHING

*Pawandeep Kaur**

Information Communication Technologies are the power that has changed many aspects of the lives. The impact of the ICT on each sector of the life across the past two-three decades has been enormous. The way these fields act today is different as compare to their pasts. Across the past twenty years the use of ICT has basically changed all forms of endeavour within business, governance and off-course education! ICT has begun to have a presence but unfortunately we are lacking to achieve desired impact. The education is a socially oriented activity. It plays vital role in building the society. The quality education traditionally is associated with strong teachers having high degrees. Using ICTs in education it moved to more student – centered learning. As world is moving rapidly towards digital information, the role of ICTs in education becoming more and more important and this importance will continue to grow and develop in 21st century. This paper highlights various impacts of ICT on contemporary higher education and also discusses potential future developments. The paper argues the role of ICT in transforming teacher-centered learning to competency based learning. It also explores some challenges in higher education like cognitive tutors, need for developing a model, collaborative authoring etc.

INTRODUCTION

ICT stands for Information and Communication Technologies. ICT is a part of our lives for the last few decades affecting our society as well as individual life. ICT which is now broadly used in educational world. Teacher, Student, administrator and every people related to education are popularly used ICT. Teacher use ICT for making teaching learning process easy and interesting. A competent teacher has several skills and techniques for providing successful teaching. So development ansd increase of skills and competencies of teacher required knowledge of ICT and Science & Technology. In modern science and technological societies education demands more knowledge of teacher regarding ICT and skills to use ICT in teaching –learning process. The knowledge of ICT also required for pre-service teacher during their training programme, because this integrated technological knowledge helps a prospective teacher to know the world of technology in a better way by which it can be applied in future for the betterment of the students. Now – adays ICT s are transforming schools and classrooms a new look by bringing in new curriculum based on real world problems, projects, providing tools for enhancing learning, providing teachers and students more facilities and opportunities for feedback. ICT also helps teachers, students and parents to come together. Continuous and Comprehensive Evaluation (CCE) helps students as well as teachers to use more technology

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for making teaching learning more attractive for the betterment of our future generation. Teachers must know the use of ICT in their subject areas to help the learners for learning more effectively. Every aspects of life are related to science and technology. Huge flow of information is emerging in all fields throughout the world. Now information and technology is popularly using in educational field for making teaching learning process successful and interesting for students and teacher both. In 1998, UNESCO World Education report refers about student and teachers must have sufficient access to improve digital technology and the internet in their classroom, schools, teacher educational institutions. Teachers must have the knowledge and skills to use new digital tools to help all students achieve high academic standard. The quality of professional development of teacher education depends on the extent of ICT integration in teacher education programme.

WHY DO WE USE ICT IN TEACHING LEARNING PROCESS

The classroom is now changing its look from the traditional one i. e. from one way to two way communication. Now teachers as well as students participate in classroom discussion. Now Education is based on child centric education. So the teacher should prepare to cope up with different technology for using them in the classroom for making teaching learning interested. For effective implementation of certain student centric methodologies such as project-based learning which puts the students in the role of active researches and technology becomes the appropriate tool. ICT has enabled better and swifter communication; presentation of ideas more effective and relevant way. It is an effective tool for information acquiring-thus students are encouraged to look for information from multiple sources and they are now more informed then before. So for this reason ICT is very much necessary for Teacher Education.

ROLE OF ICT IN QUALITY TEACHING

ICT helps teachers to interact with students. It helps them in preparation their teaching, provide feedback. ICT also helps teachers to access with institutions and Universities, NCERT, NAAC NCTE and UGC etc. It also helps in effective use of ICT software and hardware for teaching – learning process. It helps in improve Teaching skill, helps in innovative Teaching. It helps in effectiveness of classroom. It also helps in improving professional Development and Educational management as well as enhances Active Learning of teacher Trainees. It is now replacing the ancient technology. As we know now-a days students are always have competitive mind. So teacher must have the knowledge of the subject. This can be done through ICT. ICT helps teachers in preparation for teaching. In order to introduce ICT in pre-service teacher education different methods and strategies are applied. Different tools are used such as word processing, Database, Spreadsheet etc. Various technology based plans are used to help the teachers for their practice teaching. ICT prepares teacher for the use of their skills in the real classroom situation and also make students for their future occupation and social life. ICT used as an „assisting tool for example while making assignments, communicating, collecting data & documentation, and conducting research. Typically, ICT is used independently from the subject matter. ICT as a medium for teaching and learning. It is a tool for teaching and learning itself, the medium through which teachers can teach and learners can learn. It appears in many different forms, such as drill and practice exercises, in simulations and educational networks. ICT as a popular tool for organization and management in Institutions. Teachers must provide technological support to learn using motion picture, animation, simulation training which

helped student teachers to give model presentation. If the teacher is highly equipped with technology, the student will also be equipped with technology. It removes the traditional method of teaching and prepare teacher to apply modern method of teaching. ICT is plays an important role in student evaluation. ICT is k8store house of educational institution because all educational information can safely store through ICT. ICT helps Teacher to communicate properly with their students. So ICT bridge the gap between teacher and students. ICT helps Teacher to pass information to students within a very little time. ICT helps Teacher to design educational environment. ICT helps Teacher to identify creative child in educational institute. ICT helps Teacher to motivate students and growing interest in learning. ICT helps Teacher for organizational preconditions (vision, policy and culture). It is also helps Teacher for their personnel support (knowledge, attitude, skills). ICT helpful for technical preconditions (infrastructure). ICT helpful for designed learning situations which are needed for both vocational education and the training of future teachers (in the teacher training institutes). Teacher training institutes can develop their curriculum using ICT. With the help of ICT Teacher training institutes can develop communication network. Teachers learn most from their own networks (learning from others) with the help of ICT Moreover, by using the ICT, some various types of learning are exist which are e-learning, blended learning, and the open or distance learning. E-learning is the utilization of an information network which the internet, an intranet (LAN) or extranet (WAN) for course delivery, interaction and facilitation. It encompasses learning at all levels, both formal and non-formal. E-learning most commonly associated with higher education or collaborative training for every student. Online- learning is an alternative terms for E-learning. This will be more convenient for the students who are disabled, sick or do not have the transportation due to the teacher can teach the students who stay at home by using the ICT to carry out the E-learning with them together. Some of the students who are prefer to stay at home also suitable for this E-learning. While, blended learning is a type of learning model that refers to the combination of traditional classroom practice with e-learning solutions. For example, both the print-based and materials form online can be allocated by the students in a traditional class and having online mentoring sessions with their teacher through chatting or discussion. There is still a type of learning affected by the used of ICT, which is the open and distance learning. It is a way of offering the learning opportunities for students with the characterized of separation between the teacher and student in a time or place, or both time and place. By using the ICT gadgets, such as variety of media, internet and computers, the student and teacher will be allowed to communicate and interact with each other. For those students who are shy to question in the class, they can make use of the ICT to help them while learning.

Furthermore, the teachers or lectures can make use of the power of ICT to facilitate the uniqueness of substances and skills which related to the given curricular areas. This would help the students to enhance their attainments and capacity of learning.

CONCLUSION

Teaching occupies an honorable position in the society. ICT helps the teacher to update the new knowledge, skills to use the new digital tools and resources. By using and acquire the knowledge of ICT, student teacher will become effective teachers. ICT is one of the major factors for producing the rapid changes in our society. It can change the nature of education and roles of students and teacher in teaching learning process. Teachers in India now started using technology in the class

room. Laptops, LCD projector, Desktop, EDUCOM, Smart classes, Memory sticks are becoming the common media for teacher education institutions. So we should use information & communication Technology in Teacher Education in 21st Century as because now teachers only can create a bright future for students.

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EFFECT OF INFORMATION COMMUNICATION TECHNOLOGY ON STUDENTS' LEARNING OUTCOMES IN BIOLOGY AT SECONDARY LEVEL

*Mrs. Ravneet Kaur**

The current paper investigated the effect of information communication technology on students' learning outcomes. The study area was the Marigold Public School, Jalandhar. Pre-test and post-test control group design was used for the study. 50 students of 9th Standard were selected; 25 for experimental group and 25 for control group for the study. The results by t-test revealed that significant difference was found between post-test scores of experimental and control group with regards to learning outcomes. It is recommended that information and communication technology should be used in teaching science for enhancing students' learning outcomes at secondary level.

Key Words: *Information Communication Technology, Learning Outcomes*

INTRODUCTION

ICT acts as the foundation stone of the contemporary world; thus, understanding this technology and its fundamental concepts is considered as part of the core of education (UNESCO, 2002). Educational institutions may utilize ICT to enrich the students with skills and knowledge for the 21st century (Andoh, 2012), such that it can add to worldwide accessibility to education, educational equality, broadcasting of quality teaching learning programs, educators' professional growth and to help in obtaining a more effective educational management. ICT improves the standard of education by encouraging learning through ongoing discussion, delayed time discussion, directed instruction, self-learning, critical thinking, data seeking and analysis (Yuen, Law & Wong, 2003).

Utilization of ICT can enhance outcomes, instruction, administration and create important abilities in the underprivileged groups (Sharma, 2003), and at the same time influence educational instruction and research process (Yusuf, 2005). In classroom teaching and learning process, the use of ICT is imperative as it gives chance to the instructors and learners to operate, store, control and retrieve data other than to promote self-regulated and active learning (Ali, Haolader & Muhammad, 2013). The system helps instructors to plan and prepare lessons and design materials such as course content (Ali, Haolader & Muhammad, 2013).The rapid development of this system has prompted a revolution in learning as new technological advancement in education has involved the re-examination of new techniques and instruments in instructional process.

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Basically, ICT has changed the learning behavior where it has entered the classrooms to be a part of educating and learning process (Agrahari & Singh, 2013). Computers and the Internet have been touted as potentially capable means to empower the users for educational changes and improvement, by utilizing various information and resources and reviewing information from different points of view; hence, cultivating the authenticity and actuality of learning situations (Tinio, 2003). ICT helps to make complicated things simple to comprehend by simulations that once more add to real learning situations. Hence, ICT may act as a facilitator of dynamic learning and higher order thinking (Alexander, 1999). Also, students receiving instructions through ICT retain learning better (Cotton, 2001). Technology helps educators in preparing students for the real world setting and stresses that as our countries turn out to be progressively more technology dependent, it becomes significantly more essential that to be good citizens, students must figure out how to be well informed about ICT (Ashley, 2016). The findings of the study will confirm the effectiveness of ICTs in teaching of science and also predict that ICT based instruction is better than conventional teaching approach.

SAMPLE

Population of this study comprised secondary school students of Marigold Public School, Jalandhar. to 50 students of 9th Standard were drawn as a sample. For experimental group, 25 students were selected randomly by using simple random method.

RESEARCH DESIGN

Pre-test and post-test randomised control group design was applied.

TOOL

Tool was prepared on the biology subject of 9th CBSE Standard. Pretest comprised 50 MCQs to investigate the existing knowledge of the students before treatment. Achievement test was constructed to measure the post test student knowledge. Validity of the test was confirmed with the help of three experts in the relevant field. Reliability of the research tool was calculated by using Spearman-Brown Prophecy which indicated that the research tool was reliable and within statistical limits.

PROCEDURE

Researcher taught the control by using traditional teaching method only, while the experimental group was taught by using computers, internet, chemistry CDs and other softwares, e-mails for teaching. Likewise, students of experimental groups were given one-week training inusing computer applications, composing assignments; browsing concerned websites, using internet, using software, composing, sending, receiving and replying to emails. For each student of experimental group, email addresses were created and they were told to share their emails addresses with their teachers and class fellows. A post-test was conducted after seven days to the respondents of both groups.

RESULTS AND DISCUSSIONS

H1: There is no significant difference of experimental and control group students' achievements in pre-test

Table 1. Pre test score (total group)

Group	N	Mean	Std. Deviation	Df	Mean Difference	t-Value	Tabulated value at Sig.(0.05) i.e. p
A	25	26.2	6.31	48	0.88	1.48	2.01
B	25	25.32	6.81				

The Null Hypothesis 1 was tested at statistical significance level of 0.05 and the results showed that at df = 48, p = 2.01 which is greater than t=1.48. Therefore, the Null Hypothesis is not rejected. This implies there is no significant difference of pre-test scores of experimental and control group.

H2: There is no significant difference between the experimental and control group in their academic performance at the end of treatment.

Table 2. Post-test score(total group)

Group	N	Mean	Std. Deviation	Df	Mean Difference	t-Value	Sig.(0.05)
A	25	42.92	3.00	48	12.72	5.69	2.09
B	25	30.20	4.19				

The Null Hypothesis 2 was tested at statistical significance level of 0.05 and the results showed that at df = 48, p = 2.09 which is less than t=5.69. Therefore we reject the Null Hypothesis 2 is rejected. This implies there is significant difference of post-test scores of experimental and control group.

Further the mean score of Experimental group i.e.42.92 is higher than the mean of control group i.e. 30.20. It may be concluded that the treatment in the form of ICT has potential to increase the learning outcome of IX grade learners in biology subject. Directly no study was found on test counseling and its effects on biology achievement. Some of the study support indirectly through their findings.

Previous literature was examined in relation to effect of ICT on students' learning outcomes.. Directly the study was found on effects of test ICT on learning outcomes of students. Ziden, Ismail, Spian and Kumutha (2011) found that the application of ICT in teaching and learning increased the students' achievement in science subjects. Likewise, Safdar, Yousuf, Parveen and Behlol (2011) concluded that ICT has a positive effect on students' achievement scores. Similarly, Okoro and Ekpo (2016) concluded that students performed well who were taught through ICT as compared to those who were taught via conventional instructional strategy. Utilizing ICT in the study urges the participants to process data better and along these lines upgrade the comprehension and enhance their memory (Hull 1995; Gayeski, 1993). Avinash and Shailja (2013) found that the ICT program is more compelling and effective than the conventional teaching approach in terms of students' achievement scores in chemistry.

CONCLUSION AND RECOMMENDATIONS

The rapid development in ICT has brought revolution in the twenty-first century and has influenced the needs of advanced societies. ICT is becoming progressively significant in education as well as in our everyday lives. The findings revealed that ICT positively affects students' academic accomplishment in the subject of biology. The media was found more compelling, effective, rewarding and valuable in teaching of biology at secondary level; therefore, it is suggested that teachers should employ ICT in while teaching biology. ICT and other teachers should be taken in all schools on priority basis and should be given special training. To enhance the academic performance of students, there is a need to turn from conventional teaching methods to modern teaching methods. It is strongly recommended that the infrastructure of the schools should be designed in such a way that ICT could be used successfully.

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IMPACT OF ICT ON EDUCATION AND CHALLENGES

*Jagdeep Singh**

Information and Communication Technology (ICT) can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development and more efficient education management, governance and administration. ICT is basically our society's efforts to teach its current and emerging citizens valuable knowledge and skills around computing and communications devices, software that operates them, applications that run on them and systems that are built with them. In this paper, How ICT is used in Education and various issues are discussed.

Keywords: *Information, Communication, ICT.*

INTRODUCTION

Globalization and technological change—processes that have accelerated in tandem over the past fifteen years—have created a new global economy "powered by technology, fueled by information and driven by knowledge." The emergence of this new global economy has serious implications for the nature and purpose of educational institutions. As the half-life of information continues to shrink and access to information continues to grow exponentially, schools cannot remain mere venues for the transmission of a prescribed set of information from teacher to student over a fixed period of time. Rather, schools must promote "learning to learn," : i.e., the acquisition of knowledge and skills that make possible continuous learning over the lifetime. "The illiterate of the 21st century," according to futurist Alvin Toffler, "will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn."

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." These technologies include computers, the Internet, broad casting technologies (radio and television), and telephony. 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.

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THE USES OF ICTS IN EDUCATION

Radio and TV broadcasting: Radio and television have been used widely as educational tools since the 1920s and the 1950s, respectively. There are three general approaches to the use of radio and TV broadcasting in education:

1. **direct class teaching,** where broadcast programming substitutes for teachers on a temporary basis;
2. **School broadcasting,** where broadcast programming provides complementary teaching and learning resources not otherwise available; and
3. **General educational programming over community,** national and international stations which provide general and informal educational opportunities.

The most notable and best documented example of the *direct class teaching* approach is Interactive Radio Instruction (IRI).This consists of "ready-made 20-30 minute direct teaching and learning exercises to the classroom on a daily basis. The radio lessons, developed around specific learning objective sat particular levels of maths, science, health and languages in national curricula, are intended to improve the quality of classroom teaching and to act as a regular, structured aid to poorly trained classroom teachers in under-resourced schools."

IRI projects have been implemented in Latin America and Africa. In Asia, IRI was first implemented in Thailand in 1980; Indonesia, Pakistan, Bangladesh and Nepal rolled out their own IRI projects in the 1990s. What differentiates IRI from most other distance education programs is that its primary objective is to raise the quality of learning—and not merely to expand educational access—and it has had much success in both formal and non-formal settings. Extensive research around the world has shown that many IRI projects have had a positive impact on learning outcomes and on educational equity. And with its economies of scale, it has proven to be a cost-effective strategy relative to other interventions.

TELECONFERENCING

Teleconferencing refers to "interactive electronic communication among people located at two or more different places." There are four types of teleconferencing based on the nature and extent of interactivity and the sophistication of the technology: 1) audio conferencing; 2) audio-graphic conferencing, 3) videoconferencing; and 4) Web-based conferencing.

Audio conferencing involves the live (real-time) exchange of voice messages over a telephone network. When low-bandwidth text and still images such as graphs, diagrams or pictures can also be exchanged along with voice messages, then this type of conferencing is called audio graphic. Non-moving visuals are added using a computer keyboard or by drawing/writing on a graphics tablet or white board. *Video conferencing* allows the exchange not just of voice and graphics but also of moving images. Video conferencing technology does not use telephone lines but either a satellite link or television network(broadcast/cable). *Web-based conferencing*, as the name implies, involves the transmission of text, and graphic, audio and visual media via the Internet; it requires the use of a computer with a browser and communication can be both synchronous and asynchronous. Teleconferencing is used in both formal and non-formal learning contexts to facilitate teacher-learner and learner-learner discussions, as well as to access experts and other resource persons remotely. In open and distance learning, teleconferencing is a useful tool for providing direct instruction and learner support, minimizing learner isolation.

COMPUTERS AND THE INTERNET USED FOR TEACHING AND LEARNING

There are three general approaches to the instructional use of computers and the Internet, namely:

1. Learning about computers and the Internet, in which technological literacy is the end goal;
2. Learning with computers and the Internet, in which the technology facilitates learning across the curriculum; and
3. Learning through computers and the Internet, integrating technological skills development with curriculum applications.

LEARN ABOUT COMPUTERS AND THE INTERNET

Learning about computers and the Internet focuses on developing technological literacy. It typically includes:

- Fundamentals: basic terms, concepts and operations
- Use of the keyboard and mouse
- Use of productivity tools such as word processing, spreadsheets, data base and graphics programs
- Use of research and collaboration tools such as search engines and email
- Basic skills in using programming and authoring applications such as Logo or Hyper Studio
- Developing an awareness of the social impact of technological change.

LEARNING WITH COMPUTERS AND THE INTERNET

Learning with the technology means focusing on how the technology can be the means to learning ends across the curriculum. It includes:

- Presentation, demonstration, and the manipulation of data using productivity tools
- Use of curriculum-specific applications types such as educational games, drill and practice, simulations, tutorials, virtual laboratories, visualizations and graphical representations of abstract Concepts, musical composition, and expert systems
- Use of information and resources on CD-ROM or online such as encyclopedia, interactive maps and atlases, electronic journals and other references Technological literacy is required for learning with technologies to be possible, implying a two-step process in which students learn about the technologies before they can actually use them to learn. However, there have been attempts to integrate the two approaches.

LEARNING THROUGH COMPUTERS AND THE INTERNET

Learning through computers and the Internet combines learning about them with learning with them. It involves learning the technological skills "just-in-time" or when the learner needs to learn them as he or she engages in a curriculum-related activity. For example, secondary school students who must present a report on the impact on their community of an increase in the price of oil for an Economics class may start doing research online, using spreadsheet and database programs to help organize and analyze the data they have collected, as well using a word processing application to prepare their written report.

COMPUTERS AND THE INTERNET USED IN DISTANCE EDUCATION

Many higher educational institutions offering distance education courses have started to leverage the Internet to improve their programme's reach and quality. The Virtual University of the Monterrey Institute of Technology in Mexico uses a combination of print, live and recorded broadcasts, and the Internet to deliver courses to students throughout Mexico and in several Latin American countries. Similarly, the African Virtual University, initiated in 1997 with funding support from the World Bank, uses satellite and Internet technologies to provide distance learning opportunities to individuals in various English-speaking and French-speaking countries throughout Africa. At the University of the Philippines Open University, course materials are still predominantly print based but online tutorials are becoming a convenient alternative to face-to-face tutorials especially for students unwilling or unable to go to UPOU's various physical learning centres. About 70-90% of UPOU's degree courses offer online tutorials as an option, while in several of its non-degree courses tutorials are conducted only online. But even in Korea, where infrastructure is among the best in the world, and government has put consider able financial and other resources behind an ambitious ICT-based re-tooling of its educational

system, challenges to online education persist. Internet- and Web-based initiatives have also been developed at the secondary education level. The Virtual High School is a result of efforts of a nationwide consortium of school districts in the United States to promote the development and sharing of Web-based courses. In Canada, Open School offers a wide range of courses and resources to grades K-12 teachers and students that meet the requirements of the British Columbia curriculum. Course delivery is done through a mix of broadcast and video, while some courses are delivered totally online.

VARIOUS CHALLENGES

1. **Lack of qualified teachers to teach ICT in schools:** The demand for ICT learning has been tremendous and the number of teachers who are trained to teach ICT cannot meet the demand. There are more students willing to be taught computing skills than there are teaches to transfer the skills.
2. **Lack of computers:** Computers are still very expensive and despite spirited efforts by the government agencies, NGO, corporate organizations and individuals to donate computers to as many schools as possible, there still remains a big percentage of the schools unable to purchase computers for use by their pupils.
3. **Lack of electricity:** Many schools are still not yet connected to electricity; Kenya being a developing country, the government has not been able to connect all parts of the country to the national electricity grid. Consequently those schools that fall under such areas are left handicapped and may not be able to offer computer studies.
4. **Computers are still expensive in Kenya:** in a country with a GDP of $1600, majority of the individuals and schools cannot afford to buy a computer and consider it as a luxury item, more expensive than a TV. While 2nd hand computers cost as little as $150 and branded new computers being sold at $500 or higher.
5. **Broken down computers:** while a good number of schools have benefited from donated used computers, they have not been adequately equipped with the same on maintenance and repair, hence its very common to see a schools computer lab full of broken down computers, some repairable

and some not. This has actually been a major problem, and the government has now put strict measures on any person, NGO or corporate bodies willing to donate 2nd hand computers. (It is seen as a dumping ground); e-waste management.

6. **Burglary:** the fact that computers are still very expensive in Kenya, makes them a target for thieves who usually have ready markets to another party at a much less figure. This has made many schools to incur extra expenses trying to burglar proof the computer rooms. This extra expense makes some schools shy away from purchasing computers for their students.

7. **Fear by the administration:** there is still a strong perception especially by the older generation that computers require highly skilled personnel to operate them, while this may not be the case, some school administrators also fear that their students will be exposed to adult sites and other undesired sites, through the use of the internet. Some also fear the infection of viruses to their computers leading to data loss, while this may be true to some extent, proper education on the safe use of computers and help alleviate some of this fears.

8. **Fear by the teacher:** the teacher may fear being rendered irrelevant by the introduction of computers in his/her class. The 'feel' that the teacher still remains an authority and a 'know it all' in class is something that most teachers cherish, and anything that makes them otherwise is deemed an enemy of the classroom.

9. **Lack of internet or slow connectivity:** most schools are not able to connect to the world wide web, due to the high costs involved in the connectivity. On average, it may cost approximately $120 per month to connect to about 15 computers on a bandwidth of 128/64kbps. This is considered as very expensive for a very slow speed.

10. **Lack of initiative by the community leaders:** the community leaders who are charged with looking at the interests of a given community do not see the need to purchase and subsequent installations of computers to their schools as a priority. They consider health care, provision of water and other amenities as more important than buying computers for their schools.

11. **Obsolete computers:** lower the morale of both the teacher and the student; it is very common to find some schools using very old computers running on win98 or win 95.

12. **Increased moral degradation:** – internet pornography, cyber bullying and other anti-social behaviors is a worrying emerging problem.

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RELEVANCE OF ICT IN AGRICULTURE

*Harjinder Singh**

Majority of the Indian population lives in rural areas and depends on agriculture for their living. Agriculture employs approximately 53% of the total workforce of India and its share in GDP is declining. Vast store of information on agriculture has been build up in world to improve economics of farmers and application of new technological tools are being studied. Improved information flows to and from and within the agricultural sector is prerequisite for effective output. Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (IT) in the rural domain, with a primary focus on agriculture. More specifically it is called E-Agriculture and it is a relatively new term. There are various crucial factors which contribute range of information on agriculture. The main users of agricultural information include teachers, researchers and research managers, extension workers (technology transfer agents including NGOs), farmers, policy makers, trainers, consultants, bankers and the business community. Currently, Office automation, Wireless technologies, Global Positioning System, Geographic information systems, automated systems, RFID, Computer-aided design for new plant types are the tools used in agriculture.

Keywords : *ICT, Agriculture.*

Agriculture is an integral part of the Indian economy. Two-thirds of the Indian population lives in rural areas, many of whom depend on agriculture for their living. In fact, agriculture employs 53% of the total workforce. The share of agriculture and allied sectors in the gross domestic product (GDP) has declined steadily, from 38.8% in 1980-81 down to 13.7% in 2012-13. There is a growing divergence between overall economic growth and agricultural growth, which carries serious implications.27% of farmers are not satisfied with farming as a source of livelihood because it is not always profitable; 40% would quit farming if they had a choice. All over the world people are working to make agricultural profitable. New inventions and application of new technological tools are being studied all around the world to improve economics of farmers.

Large information on agriculture has been build up in world. Improved information flows within the agricultural sector is prerequisite for effective agricultural research. Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (IT) in the rural domain, with a primary focus on agriculture. More specifically it is called E-Agriculture and it is a relatively new term.

E-Agriculture is one of the action lines identified in the declaration and plan of action of the

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World Summit on the Information Society (WSIS). The Food and Agriculture Organization of the United Nations (FAO) has been assigned the responsibility of organizing activities related to the action line under C.7 ICT Applications on E-Agriculture.

Need of information on agriculture is derived from the following crucial factors

- The critical role of agriculture in economic and social development in most developing countries
- Associated issues of food security and welfare
- The need to increase yield
- Need to improve quality
- Need to avoid costly mistakes

Who needs information on agriculture?

Various categories of users or clients require information so as to carry out their activities effectively. These clients range from senior government officials to the small land holder farmers or from the chief executive of a cooperative society to a group of NGOs. These may need different information in different forms of media. The role of information professionals in this case is to match clients' needs with the right information, in the right form, and at the right time.

The main users of agricultural information include researchers and research managers, extension workers (technology transfer agents including NGOs), *farmers,* policy makers, trainers, consultants, bankers and the business community as a whole. We shall highlight more on the importance of information for agricultural researchers (generators of agricultural technologies for development). The main applications of ICT in Agriculture sector are listed below.

OFFICE AUTOMATION

The office automation is an application of computer networks, telephone networks, and other office automation tool such as photocopy machines, scanners, printers, cleaning equipment, and electronic security systems to increase the productivity of organizations.

The application of the computer in agriculture research originally exploited for the conversion of statistical formula or complex model in digital form for easy and accurate calculation which are found relatively tedious in manual calculation. In the next generation, the same computers have been used to mechanization, automation and to develop decision support system for taking strategic decision on the agricultural production and protection research.

All stakeholders of agriculture industry need information and knowledge about these phases to manage them efficiently. Any system applied for getting information and knowledge for making decisions in any industry should deliver accurate, complete, concise information in time or on time. The information provided by the system must be in user-friendly form, easy to access, cost-effective and well protected from unauthorized accesses. Computers and other office automation tool can record texts, drawings, photographs, audio, video, and other information in digital formats and can produce exact duplicates of such information at significantly lower cost. Further they can transfer information and knowledge rapidly over large distances through communications networks. World Wide Web can transfer information to an audience of 50 million in three years rather than 40 years and 15 years in case of radio and TV.

There are many governments, private and non-government organizations involved in agriculture

sector and rural development. They all have to work together to give better service to farming community. Therefore, application of office automation is one of the solutions to enhance the efficiency and inter-connectivity of the employees work in all above mentioned organizations.

Many computer applications such as MS Office, Internet Explorer, OpenOffice.org and other tailor-made office automation software packages are providing unlimited potential to organizations and individuals to fulfill their day to day data processing requirements to give an efficient service to their customers.

WIRELESS TECHNOLOGIES

Wireless technologies have numerous applications in agriculture. One major usage is the simplification of closed-circuit television camera systems; the use of wireless communications eliminates the need for the installation of coaxial cables. Wireless Electronic sensors can send environmental, water, soil, and crop data at specific intervals to an IT platform. This data can be integrated with crop models to predict plant disease. Such an IT-based test bed or platform is useful for agriculture research where electronic sensor-based field data and human observation can be observed remotely and combined to obtain desired results. Through collecting, arranging, analyzing, and processing such data, it would be possible to assess the impact of lab research in the field and use field information to influence research direction.

GLOBAL POSITIONING SYSTEM

In agriculture, the use of the Global Positioning System provides benefits in geo-fencing, map-making and surveying. GPS receivers dropped in price over the years, making it more popular for civilian use. With the use of GPS, civilians can produce simple yet highly accurate digitized map without the help of a professional cartographer.

In Kenya, for example, the solution to prevent an elephant bull from wandering into farms and destroying precious crops was to tag the elephant with a device that sends a text message when it crosses a geo-fence. Using the technology of SMS and GPS, the elephant can roam freely and the authorities are alerted whenever it is near the farm.

GEOGRAPHIC INFORMATION SYSTEMS

Geographic information systems, or GIS, are extensively used in agriculture, especially in precision farming. Land is mapped digitally, and pertinent geodetic data such as topography and contours are combined with other statistical data for easier analysis of the soil. GIS is used in decision making such as what to plant and where to plant using historical data and sampling.

COMPUTER-CONTROLLED DEVICES (AUTOMATED SYSTEMS)

Automatic milking systems are computer controlled stand alone systems that milk the dairy cattle without human labor. The complete automation of the milking process is controlled by an agricultural robot, a complex herd management software, and specialized computers. Automatic milking eliminates the farmer from the actual milking process, allowing for more time for supervision of the farm and the herd. Farmers can also improve herd management by using the data gathered by the computer. By analyzing the effect of various animal feeds on milk yield, farmers may adjust accordingly to obtain optimal milk yields. Since the data is available down to individual level, each

cow may be tracked and examined, and the farmer may be alerted when there are unusual changes that could mean sickness or injuries.

RFID

Tracking and tracing food in the supply chain is quite possible through use of an IT system especially with RFID which use light, temperature and humidity sensors. For example, tags could be placed with produce in the field during harvest, or in pallets being transported from the pack house to distribution centers. Readers and condition monitoring tags use battery assisted, passive RFID to read through pallets and containers with precision. The tags are removed at the pack house and mailed back to main center for analysis that is included in a detailed report, including product's experience regarding temperature variation, recommendations to improve temperature management.

This level of reporting can help farmers, distributors and retailers develop cold chain best practices. By transforming climate monitoring from trailer, container and warehouse-tracking devices to individual pallet tags, RFID can give fresh produce suppliers detailed visibility into the lifecycle of the produce. They can use this new found visibility and resulting best practices to reduce shrink and improve profitability.

The Veterinary Department of Malaysia's Ministry of Agriculture introduced a livestock-tracking program in 2009 to track the estimated 80,000 cattle all across the country. Each cattle is tagged with the use of RFID technology for easier identification, providing access to relevant data such as: bearer's location, name of breeder, origin of livestock, sex, and dates of movement. This program is the first of its kind in Asia, and is expected to increase the competitiveness of Malaysian livestock industry in international markets by satisfying the regulatory requirements of importing countries like United States, Europe and Middle East. Tracking by RFID will also help producers meet the dietary standards by the *halal* market. The program will also provide improvements in controlling disease outbreaks in livestock.

COMPUTER-AIDED DESIGN FOR NEW PLANT TYPES

Available data base from different germplasm for different traits can be used to draw sketch of hypothetical plant, which scientist can use to study new genetic recombination on computer. Desired model of *ideotype* can later be produced in field thereby saving huge amount of money by planned future breeding procedure.

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ECO-FRIENDLY COMPUTING : GREEN COMPUTING

*Dr. Dipika Thalia**

Green computing is a very emerging topic these days, not only because of rising energy costs and potential savings, but also due to the impact on the environment. Green computing is the study and practice of using computing resources efficiently. Green technology plays a very important role in terms of computing. Hence Green computing, the study and practice of efficient and Eco-friendly computing resources, is now under the attention of not only environmental organizations, but also businesses from other industries. Despite the huge surge in computing power demands, there are many existing technologies and methods by which significant savings can be made.This term generally relates to the use of computing resources in conjunction with minimizing environmental impact, maximizing economic viability and ensuring social duties.

***Keywords**: Green computing,Green energy*

INTRODUCTION

Green Computing means to environmentally sustainable computing. It is the study and practice of designing, manufacturing, using, and disposing of computers, servers, and associated subsystems—such as monitors, printers, storage devices, and networking and communications systems—efficiently and effectively with minimal or no impact on the environment. Green IT also strives to achieve economic viability and improved system performance and use, while abiding by our social and ethical responsibilities. Thus, green IT includes the dimensions of environmental sustainability, the economics of energy efficiency, and the total cost of ownership, which includes the cost of disposal and recycling. It is the study and practice of using computing resources efficiently. Research continues into key areas such as making the use of computers as energy-efficient as possible, and designing algorithms and systems for efficiency-related computer technologies.Modern IT systems rely upon a complicated mix of people, networks and hardware; as such, a green computing initiative must be systemic in nature, and address increasingly sophisticated problems. Elements of such as solution may comprise items such as end user satisfaction, management restructuring, regulatory compliance, disposal of electronic waste, telecommuting, virtualization of server resources, energy use, thin client solutions, and return on investment (ROI).

MEANING OF GREEN COMPUTING

Green computing is the study and practice of using computing resources efficiently. The primary

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objective of such a program is to account an expanded spectrum of values and criteria for measuring organizational (and societal) success. The goals are similar to green chemistry; reduce the use of hazardous materials, maximize energy efficiency during the product‘s lifetime, and promote recyclability or biodegradability of defunct products and factory waste. Modern IT systems rely upon a complicated mix of people, networks and hardware; as such, a green computing initiative must be systemic in nature, and address increasingly sophisticated problems. Elements of such a solution may comprise items such as end user satisfaction, management restructuring, regulatory compliance, disposal of electronic waste and telecommuting.

OBJECTIVES OF GREEN COMPUTING

- Minimizing energy consumption
- Purchasing green energy
- Save energy during idle operation
- Use eco-friendly sources of energy
- Reduce harmful effects of computing resources
- Reduce computing wastes
- Reducing the paper and other consumables used
- Minimizing equipment disposal requirements
- Reducing travel requirements for employees/customers

IMPORTANCE OF GREEN COMPUTING

Green computing is a very hot topic these days, not only because of rising energy costs and potential savings, but also due to the impact on the environment. Energy to manufacture, store, operate, and cool computing systems has grown significantly in the recent years, primarily due to the volume of systems and computing that companies now heavily rely upon. Computing power consumption of companies has reached a critical point. Despite the huge surge in computing power demands, there are many existing technologies and methods by which significant savings can be made.

ROADS TO GREEN COMPUTING

- *Green use* -Reducing the energy consumption of computers and other information systems as well as using them in an environmentally sound manner.
- *Green disposal* -Refurbishing and reusing old computers and properly recycling unwanted computers and other electronic equipment.
- *Green design* -Designing energy-efficient and environmentally sound components, computers, servers, cooling equipment, and data centres.

HOW TO CONTRIBUTE IN GREEN COMPUTING

1. ***Create Green Machines*** -Activating the power management features on your computer saves energy and money while helping the environment. Your computer’s SLEEP and HIBERNATE settings are two of the most effective ways for you to make your computer more environmentally friendly. You can activate these functions manually or through your operating system’s pre-set power management settings.
2. ***Sleep Mode*** -Sleep or standby mode conserves energy by cutting off power to your

display, hard drive, and peripherals. After a pre-set period of inactivity, your computer switches to a low power state. When you move your mouse or press any computer key, you exit sleep mode and your computer takes you back to its previous operating state. Sleep mode is an especially effective way to conserve battery power in a laptop computer.

3. ***Hibernate Mode*** **-**Hibernate mode saves energy and protects your work by copying system data to a reserved area on your hard drive and then completely turning off your computer. It also reduces wear and tear on your components. When you turn power back on, your files and your documents appear on your desktop just as you left them.

REGULATIONS AND INDUSTRY INITIATIVE

1. ***From the Government -*** Many governmental agencies have continued to implement standards and regulations that encourage green computing. The Energy Star program was revised in October 2006 to include stricter efficiency requirements for computer equipment. The directives placed responsibility on manufacturers for the gathering and recycling of old equipment.

2. ***From the Industry -***

- **Climate Savers Computing Initiative:-** CSCI is an effort to reduce the electric power consumption of PCs in active and inactive states. The CSCI provides a catalog of green products from its member organizations, and information for reducing PC power consumption. It was started on 2007-06-12.
- ***Green Computing Impact Organization, Inc.:-*** GCIO is a non-profit organization dedicated to assisting the end-users of computing products in being environmentally responsible. This mission is accomplished through educational events, cooperative programs and subsidized auditing services. The heart of the group is based on the GCIO Cooperative, a community of environmentally concerned IT leaders who pool their time, resources, and buying power to educate, broaden the use, and improves the efficiency of, green computing products and services.
- ***Green Electronics Council:-*** The Green Electronics Council offers the Electronic Products Environmental Assessment Tool (EPEAT) to assist in the purchase of "green" computing systems. The Council evaluates computing equipment on 28 criteria that measure a product's efficiency and sustainability attributes.
- ***The Green Grid:-*** It is a global consortium dedicated to advancing energy efficiency in data centers and business computing ecosystems. It was founded in February 2007 by several key companies in the industry – AMD, APC, Dell, HP, IBM, Intel, Microsoft, Rackable Systems, SprayCool, Sun Microsystems and VMware. The Green Grid has since grown to hundreds of members, including end users and government organizations, all focused on improving data center efficiency. use of metallic waste.

RECENT IMPLEMENTATIONS OF GREEN COMPUTING

Blackle :- Blackle is a search-engine site powered by Google Search. Blackle came into being based on the concept that when a computer screen is white, presenting an empty word or the Google home,your computer consumes 74W. When the screen is black it consumes only 59W.Based on this theory if everyone switched from Google to Blackle, mother earth would save750MW each year. This was a really good implementation of Green Computing. The principle behind Blackle is based on the fact that the display of different colors consumes different amounts of energy on

computer monitors.

Fit-PC: *a tiny PC that draws only 5w:* Fit-PC is the size of a paperback and absolutely silent, yet fit enough to run Windows XP or Linux. fit-PC is designed to fit where a standard PC is too bulky, noisy and power hungry. If you ever wished for a PC to be compact, quiet and green then fit-PC is the perfect fit for you. Fit-PC draws only5 Watts, consuming in a day less power than a traditional PC consumes in 1 hour. You can leave fit-PC to work 24/7 without making a dent in your electric bill.

Zonbu Computer: The Zonbu is a new, very energy efficient PC. The Zonbu consumes just one third of the power of a typical light bulb. The device runs the Linux operating system using a1.2 gigahertz processor and 512 Meg of RAM. It also contains no moving parts, and does even contain a fan. You can get one for as little as US$99, but it does require you to sign up for a two-year subscription.

Thin client: Sun Microsystems is reporting increased customer interest in its Sun Ray, a thin desktop client, as electricity prices climb, according to Bapat, vice president and chief engineer in the Eco Responsibility office at Sun. Thin clients like the Sun Ray consume far less electricity than conventional desktops, he said. A Sun Ray on a desktop consumes 4 to 8 watts of power, because most of the heavy computation is performed by a server. Sun says Sunrays are particularly well suited for cost-sensitive environments such as call centers, education, healthcare, service providers, and finance. PCs have more powerful processors as well as hard drives, something thin clients don't have. Thus, traditional PCs invariably consume a substantially larger amount of power. In the United States, desktops need to consume 50 watts or less in idle mode to qualify for new stringent Energy Star certification.

The Asus Eee PC and other ultra portables: The "ultra-portable" class of personal computers is characterized by a small size, fairly low power CPU, compact screen, low cost and innovations such as using flash memory for storage rather than hard drives with spinning platters. These factors combine to enable them to run more efficiently and use less power than a standard form factor laptop. The Asus Eee PC is one example of an ultraportable. It is the size of a paperback, weighs less than a kilogram, has built-in Wi-Fi and uses flash memory instead of a hard drive. It runs Linux too.

GREEN COMPUTING TIPS

- Use LCD monitors instead of CRT monitors, which consume a lot more electricity. LCD monitors uses three times less when active, and ten times less energy when in sleep mode.
- Use laptops instead of desktop computers, also cuts down on energy usage. If a laptop is not feasible, look for the Energy Star label when purchasing a computer. New US government regulations make this more important than it's been for the past fifteen years. Disable your screen saver. Burn-in is not an issue with modern monitors, and screen savers can prevent your monitor and computer from going into idle/sleep mode.
- Enable the power management features on your computer, to turn off components such as the monitor, fans and hard drive when idle. On Windows, go to Control Panel/Power Options. On OS X, go to System Preferences/Energy Saver. Switch off the monitor, printer, scanner and other peripherals when not in use.

CONCLUSION

After studying the energy used by computing resources it is concluded that, so far, consumers haven't cared about ecological impact when buying computers, they've cared only about speed and price. Devices use less and less power while renewable energy gets more and more portable and effective. New green materials are developed every year, and many toxic ones are already being replaced by them. The greenest computer will not miraculously fall from the sky one day; it'll be the product of years of improvements. The features of a green computer of tomorrow would be like: efficiency, manufacturing and materials, recyclability, service model, self-powering, and other trends.

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ROLE OF ICT TOOLS IN QUALITY TEACHING

Neha Saini & Dr. Sunaina***

ICT is one of the important pillars for the growth of the nation and the ability to compete with the world. It improves the quality of life as it can be used for teaching, learning and education media and the mass communication media in promoting practical and relevant issues.The art of quality teaching and learning is a complex process. To reduce such complexity, the advanced teaching aids should be available as it is the need of the hour. The recent web developments led to a technological revolution in all fields of our life especially teaching and learning.In the contemporary era, ICT is gaining lot of popularity in teaching and learning because many teachers are embracing it. ICT has its noticeable impact on the quality and quantity of teaching-learning process. In concrete terms, ICT can enhance teaching and learning through its dynamic, interactive, and engaging content and it can provide real opportunities for individualized instruction. The modern classroom environment has changed a lot than the previous-traditional environment due to technology.

The present paper highlights the importance of ICT and its tools that can help in the development of teaching and learning process by showing how technology affects the teaching and learning levels thereby enhancing the overall quality of teaching. The paper also describes the ICT tools, both web-based and non-web based and their relevance.

Keywords: *ICT, technology, Internet, teaching, learning*

INTRODUCTION

ICT is considered to be one of the basic building blocks of modern society. To fully understand the relevance of ICT in teaching, it is relevant to first understand its meaning. ICT stands for information and communication technology. It is defined as a set of technological tools and resources that are used to communicate, create, spread and manage the information. The introduction of ICT to education can help increating a new way of learning and teaching where we are in a world that technology has reduced it into a small village. In the last two decades the use of ICT has changed the practices and procedures of nearly all forms of endeavor within business and governance. The use of ICT in teaching lends itself to more student-centered learning setting. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in future. The use of ICT in teaching and learning process has become very important. The

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teacher is expected to be both traditional and modern in his/her teaching-learning process. The teacher has to be prepared to have the capacity of including ICT in the teaching process. Internet has gained and still gaining an immense popularity inteaching and more teachers and learners are embarrassing it. So, there is no doubt that ICT has impacted the quantity and quality of teaching and learning in traditional and distance education institutions. Therefore, ICT can enhance teaching and learning through its dynamic and interactive content and can provide real opportunities for individualized instruction.

MEANING OF ICT

The term ICT stands for information and communication technology. The term information and communication technology refers to forms of technology that are used to transmit, process, store, create, display, share or exchange information by electronic means. ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as various services and appliance with them such as video conferencing and distance learning. The definition of ICT includes such technologies as radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, and computer and network hardware and software, as well as the equipment and services associated with these technologies, such as videoconferencing, e-mail and blogs. ICT is a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. Communication and the information are at the very heart of the educational process, consequently ICT use in education has a long history. ICT has played an educational role in formal and non-formal settings, in programs provided by governmental agencies, public and private educational institutions, for profit-corporations and non-profit groups, and secular and religious communities.ICT includes the use of computer technology, including hardware, peripheral devices, media, delivery systems and software. ICT is an accepted element in all our lives and has a central role to play in education.

OBJECTIVES OF ICT

The main aims of ICT are given below-

1. Improvement in learning pace and achievements.
2. Increased acquisition of knowledge, skills by individuals required for better living and sustainable development.
3. To promote and facilitates the relationship between human and the environment.
4. To implement the principle of long lasting education.
5. To increase the variety of educational methods and services and literacy rate through distance education.
6. To promote the technology literacy among citizens, and the equal importance to slow and gifted children.

THE USE OF ICT TOOLS

Today ICT is being used as a tool of improving the quality of life. Its use is increasing in such a way in recent years. Different language institutions in all over the globe have already realizedthe importance of ICTin teaching-learning process. However, ICT plays an important role in

communicating, establishing and managing information. ICT has proved effective in delivering learning to all over the world and to those people who are unable to move from their places and cannot move their limb and hardly utter words. It becomes possible for them to enhance education due to ICT. There are many different ICT tools that can be used in teaching and learning. These tools can be applied in different education fields.

ICT TOOLS IN TEACHING AND LEARNING

There are many ICT tools which are discussed in detail below. They are broadly divided into two types ie non-web based and web based learning tools.

NON WEB BASED LEARNING

- **Radio and Television:** Radio and television are the useful tools in learning. Both the instruments offer cheap access to rich programs. Through radio it is possible for the teachers to make the students to listen the lectures by eminent and outstanding speakers. TV is another important technological medium used by the language teachers as it appeals through eyes and ears. TV provides a full audio visual simulation, dynamic and attains a higher degree of realism. TV gives linguistic expression along with the facial expression.
- **Films:** Films are the most powerful element in the hands of an intelligent and resourceful teacher. Films appeal the pupils, heighten their interest and held them in the retention of the learned materials. Films are profitably used to showcase the facts, actions skills and background information. The students of primary level get interested to know the functioning of the speech organs and the pronunciation. The students of higher level are acquainted with classical and newly released plays and novels which have been filmed.
- **Overhead Projectors:** The projector, a conventional method of teaching, is highly beneficial and an alternative to chalk and talk. It ensures high- quality instruction. It is an important visual aid to display the context to the large class. OHP's allows the teachers to use images, diagrams and it reduces the work of the teacher by drawing it on the black board. By using OHP's more complicated sources can be brought into any classrooms and it is easy to use, versatile and it is easy for the students to take notes from it.

WEB BASED LEARNING

A web based learning also called technology based learning/distance learning/on line education/ e-learning is one of the fastest developing areas. It provides opportunities to create well–designed, learner–centered, affordable, interactive, officiate, flexible e-learning environment (khan, 2005). There are thousands of English web based classes that offer trainings for a variety of basic language skills such as Learning, Speaking, Reading and Writing and are made interactive in a variety of ways. Some of the common technologies available for promotion of education are as follows:

- **YouTube:** YouTube is a platform where we can find and share authentic video material which can also be used in the classroom. Wikipedia defines YouTube is a video sharing website on which users can upload and share videos, and view them in MPEG-4 format.
- **E-mail:** The students can correspond with teachers by creating a personal email account which is free. The students can mail their home work to the teachers concerned and get it corrected in turn. The teacher can also provide revisions, feedback, suggestions for the

betterment of every work and send them back.

- **Blogs:** A blog is a personal or professional journal frequently updated for public consumption. The blogs enable uploading and linking the files which is very much suited to serve as on line personal journals for students. Blogging becomes communicative and interactive when participants assume multiple roles in the writing process, as readers/reviewers who respond to other writers' posts and as writers-readers who, returning to their own posts, react to criticism of their own posts. The readers in turn can comment on what they read, although blogs can be placed in secured environments as well.
- **Skype:** Every internet service has audio functions, and technological instruments like laptops with cameras. The students could communicate with their teachers and friends who are far away.
- **Mobile Phone:** Learners can search for new words using dictionary option in the mobile phones and enrich their vocabulary. They may verify the spelling, pronunciation and usage of the specific word they searched for. Moreover, they can use Short Message Service (SMS) to send queries to their instructors and get their doubts cleared.
- **Ipods:** Ipods, one of the multimedia devices, enhance the users to generate, deliver, exchange texts, image, audio and video scripts as per the requirement. The teachers send text messages and the students can read and answer to them. Thus, ipods give a chance to the learners to improve their listening and writing.

ROLE AND BENEFITS OF ICT IN THE FIELD OF EDUCATION

ICT is a potentially powerful tool for extending educational opportunities. The use of ICT is making major differences in the learning of students and teaching approaches. Several studies reveal that students using ICT facilities mostly show higher learning gains than those who do not use, actually it acts as an assisting tool. It provides quicker and easier access to more extensive and current information. ICT can also be used to do complex tasks as it provides researchers with a steady avenue for the dissemination of research reports and findings. The major benefits of ICT are-

1. To develop variety of educational services and medium.
2. To promote equal opportunities to obtain education and information.
3. To develop a system of collecting and disseminating educational information.
4. To promote technology literacy and support distance learning.
5. To support sharing experience and information with others.
6. Helps in improving innovative teaching skills and makes classroom teaching effective.
7. Acts as an assisting tool for teaching and learning itself
8. ICT helps teachers to motivate students and develop interest in learning.
9. ICT is store house of educational institution because all educational information can safely store through ICT.
10. ICT helps teachers to communicate properly with their students. So ICT bridge the gap between teacher and students and plays an important role in student evaluation.

LIMITATIONS OF ICT

ICT as a modern technology simplifies and facilitates human activities is not only advantageous

in many respects, but also has many limitations. Limitations can be categorized as teacher related, student related, and technology related. Teacher's attitude towards use of these technologies is vital, many observations reveal that some teachers do not have clarity about how far technology can be beneficial for the facilitation and enhancement of learning due to lack of competency to handle, whereas some teachers may have positive attitudes to the technology. Teacher resistance and lack of enthusiasm to use ICT in education may also be another limitation. Unless teachers develop some basic skills and willingness to experiment with students, ICT use in education is in a disadvantage. Lack of infrastructure and equipment's are another problem for back warding Indian education system.

CONCLUSION

Information communication technologies are influencing all aspects of life, in which the impacts of ICT is significant is education. ICTs help expand access to education, motivate to learn, facilitates the acquisition of basic skills, and can transform the learning environment thus help improving the quality of education. ICT has tremendous potential for education. ICT enables a teacher to reach out widely efficiently and effectively. It helps teachers and institutions to be more modern and dynamic. Eventually, the use of ICT will enhance the learning experiences of students. It also helps for building a successful career, in a technology savvy world.

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HIGHER EDUCATION IN INDIA : RECENT ISSUES AND TRENDS

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In this review paper we have discussed the ambiguous concepts of higher education that is used in the literatures all over world. The study has tried to trace the higher education in India form the long past. Then we have discussed present status of higher education in India and the recent trend in Indian higher education. The issues like Quantity of Institution, Fields of Education, Enrolment Pattern, Teacher Availability, Constitutional Provision on Higher Education, Disparity in Access to Higher Education, Governance Practice, Quality Control Mechanism, Trend in Finance has been discussed briefly. Recent trends like privatization and globalization emerging in the field of Indian higher education was also highlighted in this analysis.

Keyword: *Higher Education, Quality Control, Privatization, Globalization.*

INTRODUCTION

The importance of higher education has been clearly expressed by our first Prime Minister Mr. Jawaharlal Nehru in the following words: "A university stands for humanism, for tolerance, for reason, for the adventure of the ideas and for the search of truth. It stands for onward march of human race towards even higher objectives. If the universities discharge their duties adequately, then it well with the nation and the people". It indicates that higher education occupies a crucial position in education system of a nation as it affects the overall development of a country[1].

HIGHER EDUCATION: CONCEPTS AND MEANING

The term Higher Education is ambiguous in nature because it is used in variety of way by different people, different country and in different point of time. In fact, there is no straight forward definition of Higher Education.

Internationally after school education can be divided into Higher Education and Further Education and is known as Tertiary Education[1]. Higher Education qualification implies Higher Diplomas, Foundation Degrees to Honours Degrees and takes a minimum of 3 years to maximum of 4 years to complete. Further Education on the other hand refers to Post Graduate or Master and Doctorate degrees. In a single word Tertiary Education means colleges and university level education.

Indian education ladder starts at 6 years of age. It comprise of 10 years of primary or

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elementary and secondary stages, 2 years of higher secondary stages, 3 years bachelor's degree, 2 years of masters degree and at least 3 years beyond masters degree for a Ph.D. According to NEP 1968, 1986 this is known as 10+2+3 system. The Post Higher Secondary Education is known as Higher Education in India.

HISTORY OF HIGHER EDUCATION IN INDIA

In the long past the institution of higher education has been given an important position in the Indian society. There were perhaps three streams of tradition- (i) Ancient and medieval Sanskrit and Buddhist tradition. (ii) The medieval Arabic and Persian tradition. (iii) East and South Indian such as Tamil tradition.

It has been found from the writings of Chinese travellers like Fi- Hien, Hiuen-Tsang that there exist ancient seats of learning at Takshashila (5^{th}-6^{th} Century B.C), Kanchipura, Nalanda (5^{th}-6^{th} Century A.D), Odantapuri, Sri Dharryakataka, Kashmira, Vikramashila (800A.D). Among the subjects studied here were grammar, metaphysics, logic etc. In both Sanskrit and Arabic higher learning much secular and scientific learning in law, medicine, mathematics, astronomy etc. was cultivated besides literature, philosophy with the help of books, discussion and memorization.

Indian Higher Education in its present form begun to appear from the time when British parliament renewed the Charter Act (1813) for educational development in India. College to disseminate English education was established in 1818 at Serampore, Calcutta. McCauley's minute (1835) to promote English education, Charls Woods' Dispatch (1854) to establish the universities of Calcutta, Bombay, and Madras in 1857 and the introduction of grants-in-aid for these universities were the major events. Indian Education Commission or Hunter Commission's (1882-83) recommendation to finance University Education in India provided a major impetus to higher educational development in India. Calcutta University Commission (1917) called as Saddler Commission also recommended for autonomy of universities. The Hartog Committee (1929) report suggested for improvement of quality and standards at the University level education In India. The Abbot-Wood Report (1937) recommendation suggested that English should be the medium of Instruction and encourages the establishment of Polytechnics Colleges, Central Technical Board and Vocational Teacher Training Colleges. Finally Sargent Report (1944) recommendation for the establishment of U.G.C and formulation of blue print for Indian Higher Education structure was the major landmark.

At the time of independence there were almost 20 universities and 500 affiliated colleges with the students of near about 0.1million in India. After independence India made various efforts to improve higher education system. The first education commission in independent India, Radhakrishnan Commission (1948-49) also recommended for the establishment of UGC. Secondary Education Commission (1952) pioneered a system of 3 year secondary and 4 year higher education. Indian Education Commission (1964) recommended for the introduction of 3 year Degree course and 4 year Honours Degree course. The National Policy on Education (1968) demanded for qualitative improvement at higher education level. The National Policy on Education (1986) recommended 10+2+3 pattern of educational system. The effects of the recommendation of such commissions can be observed from the present status of higher education in India.

PRESENT SCENARIO OF HIGHER EDUCATION IN INDIA

The development of higher education in India after independence has been remarkable. Following

facts and figure represents the development of the higher education system in India. India is after the China and the United States in terms of size of higher education.

Quantity of Institution: There exist different kinds of higher educational institution operating into the land. Universities established by an Act of Parliament known as Central Universities and of a State Legislature known as State Universities. Universities which have been given the status of a university with the power to award their degrees by central government notification are known as Deemed Universities. Prestigious institutions recognized as higher educational institutes by Parliament are known as Institutes of National Importance. These Institutions may be both government-aided – unaided and public –private.

UGC report 2012 shows that there exist near about 43 central universities, 272 state universities, 130 deemed universities, 95 private universities, 5 institutions of National Importance and more over 34,000 colleges functioning in India.

Fields of Education: Higher education system in India imparts education in almost all fields of knowledge viz.: Arts, Science, Commerce/Management, Education, Teachers training, Engineering/ technology/architecture, Medical, Law/Agriculture/Veterinary, music and performing arts; national and foreign languages; culture; communications etc.

Enrolment pattern: In Pre-Independence era elitist nature of higher education has prevailed and was very narrow in base. After independence the base has been widened and the enrolment in higher education has increased to near about 140 lakes as on 2011.

There exist three type of index to measure the enrolment rate in higher education viz. Gross Enrolment ratio (GER), Net enrolment ratio (NER) and Enrolment of Eligible ratio (EER). The GER is the ratio of students of all age group enrolled to total population in age group of 18 to 23. The NER is the ratio of student enrolment in age group of 18 to 23 to total population in age group of 18 to 23. While the EER is the ratio of students enrolment in higher education those who completed higher secondary level education to total population in age group of 18 to 23. According to NSSO the GER/ NER/EER is 13.2/13.2/59 in 2003-2004[2]. With a GER of 13.2 India is below the world average and also below the average of developing nations. The low levels of enrolment in undergraduate level (86 % of H.S students), high dorp out in postgraduate level from undergraduate level (only about 12% of undergraduate student), high dependency on distance education and shifting enrolment from traditional courses to professional courses becomes the nature of Indian higher education.

Teachers availability: According to the UGC Annual Report, 2004-05 the student/teacher ratio in University is 18:1 and in colleges is 23:1.

Constitutional provision on higher education: The university education commission (1948) made a recommendation to government that it should make education concurrent subjects. In India there is a central list, a state list and a third list which shows the concurrent power of centre and state.

Entry 63, 64, 65 and 66 dealt with the issues regarding higher education. Entry 63 is concerned with the control of national library, central universities etc. Entry 64 dealt with the scientific and technical institution. Entry 65 is related to the establishment of professional, technical and vocational education. Entry 66 is concerned with the coordination and determination of standards in institution for higher education or research or scientific and technical institution. In terms of this entry UGC Act of 1956 was passed and other coordinating bodies of higher education were established. The Colleges with the recognition of the University Grants Commission (UGC) receives grants from the

UGC. Under list 3 Entry 20, 25 are also related to the higher education. Entry 20 is regarding to the establishment of planning commission which determines the finance of higher education. Entry 25 is referred to the vocational and technical training of labour.

Disparity in access to higher education: Mostly 4 kinds of Inequity in higher education are visible in India: gender disparity, geographical inequity, minority-majority based inequity, and inequity based on economic class.

The constitution of India through its fundamental right and directive principles of state policy guarantees equal right and opportunities to women. Article 14, Article 15(3), Article 39(e) and Article 51 A (e) confers equal opportunity to women in political-economical-social sphere, means of livelihood, pay and dignity etc. Gender discrimination in education has been national concern since independence. In this connection some important commission like Durga Bai Deshmukh commission (1958-59), Hans Meheta Comission (1962-64), N.P.E (1986) and P.O.A (1992) was appointed. There was a pronounced policy shift from equalization of educational opportunity to women empowerment. Recently the government has enacted the national policy for empowerment of women 2001. As a result the gender disparity remains alarming even in present decades. The following table shows the gender disparity in higher education in India according to selected educational statistics 2001-02[3].

Table-1: Disparity in enrolment in different course

Course	Boys enrolment %	Girls enrolment %
Ph.d/D.Sc/D.Phil	64.8	358.2
M.A	63.4	36.6
M.Sc	55.5	44.5
M.Com	62.3	37.7
B.A/B.A(Hons)	61.9	37.7
B.Sc/B.Sc(Hons)	62.5	37.5
B.Com/B.Com(Hons)	64.6	35.4
B.E/B.Sc/B.Arch	77.7	22.3
B.Ed/B.T	57.2	42.8
M.B.B.S	59.4	40.6
Intermediate/Jr College/Pre Degree/Pre University	65.4	34.6
H.S (10+2)	60.5	39.5

Minority-majority based inequity is also visible in higher education. There exists constitutional provision to safeguard the right to participate equally in higher education of religious and language minority, SC and ST. Article 29 gave the right to admit in any educational institution and Article 30 gave the right to establish educational institution by the minorities with their language and culture. Article 350A has given the facility to minorities to be instructed in their mother tongue. Article 46 promotes educational and economic interest of weaker section of the population like SC and ST. Article 15(4), Article 16(4), Article 332, Article 334 laid down the provision of reservation of seats in educational institution, Lokshava, Bidhan Shava and in employment for SC and ST. In spite of that provisions Muslim enrolments in engineering college is only 12.44% and in medical college is 9.55%. Total literacy of SC and ST is 37.4% and 29.6% respectively.

Governance practice: Ministry of Human Resource Development (MHRD) is the highest

body of governance. Actually University Grants Commission controls higher education in India. The accreditation to the institutes for higher education is given by 12 autonomous institutions Under University Grants Commission viz. All India Council for Technical Education (AICTE), Distance Education Council (DEC), Indian Council of Agricultural Research (ICAR), Bar Council of India (BCI), National Assessment and Accreditation Council (NAAC), National Council for Teacher Education (NCTE), Rehabilitation Council of India (RCI), Medical Council of India (MCI), Pharmacy Council of India (PCI), Indian Nursing Council (INC), Dental Council of India (DCI), Central Council of Homeopathy (CCH), Central Council of Indian Medicine (CCIM) and Veterinary Council of India (VCI). The functioning of these institutions some time becomes complicated and coinciding.

Quality control mechanism: Quality control implies maintaining certain levels of quality. After evaluating the higher educational institution the status of the institution is determined. If the institution qualifies for certain status regarding quality accreditation may be given for the institution itself e.g., permission to operate and/or its students e.g., eligibility for grants and/or I graduates qualified for certain employments. This accreditation process is consisting of two activities: one is quality assurance; determining standard of quality and performance for minimum acceptability in the interest of public; and the other is quality improvement; providing the service that is designed to improve institution and programmes through an external review process.

The main agency which assesses and accredits University and Colleges is the National Assessment and Accreditation Council (NAAC) established by the UGC in 1994. Whereas some other agencies like National Board of Accreditation (NBA), Accreditation Board (AB), Distance Education Council (DEC) also performs similar function. In addition to National accreditation local quality inspection to colleges is also done by the affiliating University. NAAC has formulated 3 stages accreditation process. At first it receives self study report from the institutions, second it inspects the institution for validation of the self study report and finally it makes recommendation on the basis of reports and inspection. NAAC has identified 7 criteria for assessment procedure- i. Curricular aspect, ii. Teaching learning and evaluation, iii. Research, consultancy and extension, iv. Infrastructure and learning resources, v. Students reports and progress, vi. Organisation and management, vii. Healthy practices

The emergence of the internationalization in education created major challenges to quality assurance. A global effort is thus needed to meet these challenges.

There are different parameters on the basis of which we can judge the quality of higher education. According to Stella, 2002 NAAC has given A grade to 10% of colleges and 32% universities, B grade to 66 %colleges and 52 % universities and C grade to 24% of colleges and 16% universities[4].

Trend in Finance: Higher education is the most developing sectors of the education system in India. This development can't be possible without financial assistance of government. Government is the major financier of higher education. As education is basically a public goods markets cannot ensure the equity and efficiency alone. In a full-fledged market economy governments bears large part of cost of public institutions and as well as some part of the cost of private institutions. This is because education generates externalities necessary for economic development. The sources of finance in higher education sector are given in the following table.

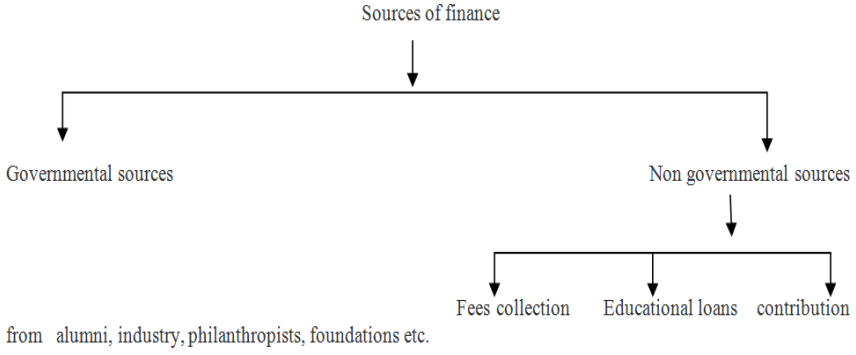
Today the government funding in higher education becomes a huge burden of national budget in the context of curtailing fiscal deficit. At the start of 1st 5 year plan the total allocation for higher education was only Rs.170 million which has now gone beyond Rs.90, 000million in 2004-05. This

impressive increase is offset to some extent by the rise in prices (inflation) and rise in enrolment in higher education. The share of education in Gross National Product (GNP) is the most widely used indicator of priority given to education in a country. The following table shows how share of education as percentages of GNP changes from 1950 to 2004-05 but it never reaches the target of 6% as recommended by the New Education Policy (1986)' and the revised Programme of Action (1992)[5].

Table-2: Government expenditure on higher education

Year	Percentage of GNP	Plan period	Plan expenditure on higher education in million (percentages of total allocation in education)
1950-51	.19	1st 1951-56	140(9%)
1960-61	.39	2nd 1956-61	480(18%)
1970-71	.77	3rd 1961-66	870(15%)
1980-81	.98	4th 1969-74	1950(25%)
1990-91	.46	5th 1974-79	2050(55%)
1991-92	.42	6th 1980-85	5590(22%)
1992-93	.41	7th 1985-90	12010(16%)
1993-94	.40	8th 1992-97	15160(8%)
1994-95	.39	9th 1997-2002	25000(12%)
1995-96	.37	10th 2002-07	5615
1996-97	.35		
1997-98	.35		
1998-99	.43		
1999-2000	.47		
2000-01	.49		
2001-02	.39		
2002-03	.40		
2003-04	.37		

Source: *CABE Report on Financing of Higher and Technical Education, June 2005.*



The state wise allocation for higher education differs widely across the states of India. The share of budgetary expenditure was at 11% on an average across all the sates. Bihar, Gujarat, Maharashtra, Rajasthan and U.P remains far below the national average. The performance of other states is quite satisfactory[6]. Allocation to education in five year plans denotes government's commitment to new initiatives. The above table shows the plan expenditure on higher education in million at different 5 year plans.

It is apparent that the government allocated expenditure on education in a country like India is substantial where 1/3 rd of population is illiterate. The following concern remains critical in the context of higher education of India. i. Inadequate expenditure with respect to increased enrolment. ii. Inflationary pressure. iii. Rising staff salary. iv. Declining developmental expenditure. v. Immobilization of additional resources. vi. Declining share of fees etc.

In view of these concerns UGC has constituted different committee to restructure the financial system of higher education institution. The important among them are i. Punnayya Committee (1992-93), ii. Anandkrishnan Committee (1999), iii. Mahmood ur rahaman Committee (2000) etc.

This committee suggested a revision of fees structure of educational institution in order to generate funds. They also recommended for privatization of educational sector as a strategy to deal with the problem of budget deficit and declining share of educational expenditure of budget.

RECENT TREND IN INDIAN HIGHER EDUCATION

Privatization: Concept: Privatization means initiation of private ownership, management and control of organizations. The control is in terms of decision making and responsibility of money and administration. In education privatization can be seen as expansion of private sector's control.

Privatization of higher education has emerged in several forms and types in the recent decade in India[7]. Privatization within government higher education institutions takes place in the form of introducing self-financing courses within government institutions. Converting government aided private institution in to private self financing institution. Allowing self financing private institution with recognition and also without recognition. This may be termed as commercial private higher education institutions. Private players are mainly engaged themselves in setting up of state private universities, deemed university and academic institution with foreign collaboration.

Need to privatize higher education: i. To increase competitive efficiency of public sector. ii. To meet the growing demand of higher education with rapid growth in population. iii. To reduce financial burden on government and for decentralization of educational institutions. iv. For imparting quality education and training and shaping of the curriculum according to global, national and local needs. v. To fulfil the need for skilled manpower and to fulfil the need of the country in liberalization, privatization, and globalization. vi. To facilitate technological developments and information based economic development

In India, the thrust on privatization in higher education started in the early 90s under the LPG (Liberalization, privatization and globalization) policy[8]. The last two decades has witnessed an exponential growth in Indian higher education system. But there remain lots of challenges to privatization. Privatization of higher education has badly affected the poor, undermined equity, diversity and openness and could not ensure the knowledge about the providers; and price and quality of the product.

Globalization: Concept: The term globalization and internationalization is used interchangeably**.**

There exist narrow difference between globalization and internationalization. Globalization refers to involvements of large number of countries and internationalization refers to involvement of two or more countries.

With the developments of information and communication technology the barriers of national boundary has been broken. As a result there has been considerable development in the social, economical and educational fields at international and global level. This is termed as internationalization and globalization.

The development in education has resulted in the following events. i. Increased practice of international comparison of educational development. ii. Mobility of students from one country to another. iii. Mobility of scholars from one country to another. iv. Setting up of educational institution from one country to another. v. Marketing of education worldwide. vi. Development of framework for globalization of education through GATT (general agreement on tariff and trade), GATS (general agreement on trade in services) under WTO (world trade organisation).

GATS (General Agreement on Trade in Services) in Educational services

Important aspects: i. This is a multilateral agreement as much as 144 countries have signed. ii. These services cover all services (19 services) including educational services which are not entirely provided by the government. iii. There should be no discrimination between all members of the WTO called most favoured nation. iv. When a members country is providing services in a nation the other members country need to go with consultation of host country to enter into the market. v. Each member country has to ensure judicial, arbitral and administrative provision in an impartial manner. vi. GATS include following educational service trade[9]. i. Cross boarder supply of services – it includes any type of educational courses through distance mode, internet (testing services and course material), ii. Consumption abroad- involves education of foreign students, iii. Commercial presence – refers to presence of foreign investor in education in host country, iv. Presence of natural person – refers to mobility of scholars students between countries. vii. Educational services meant for primary education, secondary education, adult education etc are allowed to be traded under GATS in the following forms of educational activities- i. transitional education, ii. On line education, iii. Online distance education, iv. Collaborative education.

Impact: 1990 The impacts of globalization on Indian higher education since are not clear. There exists no database available on the status of foreign players in the field of Indian higher education. Following issues has emerged- i. Government policy of non profit motto of setting up of educational institution has changed. Free proposed to be charged by the foreign players are considerably high. ii. Government norms with respect to management and administration of educational institution have changed. Instead of public trust and society private, public- private ownership has been encouraged. iii. With respect to quality of curriculum transaction, course duration and setting up of admission criterion government rules has been violated. iv. Educational finance has undergone a radical changes private finance is encouraged and FDI (foreign direct investment) under GATS is allowed in to the educational sector.

CONCLUSION

Though India has a long heritage of quality higher education system it has failed to solve the problems of Access, Equity, and Quality until recent past. The deteriorating administration,

unproductive practice, corruption and fund availability leads to break down of indigenous educational system. Recently with the introduction LPG i.e. liberalization, privatization and globalization an avenue to revive the system has evolved. On the one hand globalization may help to improve the quality of education it can also affect the indigenous development of educational sector. A domestic regulatory mechanism should be put into place to avoid negative impact of globalization

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30

A BETTER FUTURE FOR TEACHING LEARNING SYSTEM : INTEGRATION OF ICT THROUGH BLENDED LEARNING STRATEGIES

Piyali Sarkar & Dr. Sonia Sharma***

Blended learning is a technique by which online and offline resources are blended together to get a finest result in classroom teaching. ICT is the technique by which the technology entered the field of education. Here we are going to discuss about the effect of integration of ICT by blended learning technique in educational institutes. Many previous studies have proven the potential of blended in educational institutions in many countries. There are some papers also depicting the effects of blended learning with relation to ICT. Here we are going to discuss about the features of blended learning through ICT and its benefit for integration in educational field. Conventional classrooms have the physical presence of a teacher but lacks to draw attention of pupil, sometimes it becomes boring for them. While online learning provides attraction and makes student attentive in classroom but the physical presence of teacher are lacking there. To compensate these loopholes blended learning techniques are introduced. When its implementation with ICT is occurred, it can seal all the flaws of teaching learning system.

Keywords: *ICT, Blended Learning, Teaching strategies, ICT and Blended Learning.*

INTRODUCTION

"Technology is just a tool
In term of getting the kids working together and motivating them
The teacher is the most important"

– Bill Gates

For the purpose of all round development of children, they should be treated with proper educational facilities. Conventional brick and mortar classroom method in not adequate to meet the challenges of 21st century. To meet those challenges properly they needs advanced and technology driven classroom and advanced education system as well. Incorporation of technology in teaching learning process increases interest and helps to draw attention of children in the class and it also helps in improvement of outcome of teaching learning process. So, technology-driven classes are proven more efficient than the traditional Chalk and talk one, in many cases. In many developed countries

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higher education institutes have started to adopt employee information and communication technology that is ICT as the solution for the lag of teaching learning system. Conventional classroom system requires 100% involvement of teachers and a teacher driven learning pattern where the queries and problems of the students sometimes remain of unsolved because of their fear for the respective teacher. In technology-driven classrooms, child feels liberty and can enjoy the online interface as well and the learning outcome automatically proves more efficient for the same.

The term ICT stands for information and communications technology. ICT also used to refer to the unification of audio visual and telephonic networks with computer networks to a single cabling or link system. ICT is a broad term which includes any communication devices like radio cell phone television computers and network hardware satellite system etc. it's brother approach includes video conferencing and distance learning also. UNESCO made integrating ICT as a part of educational system to to accelerate the quality and access to education. Term ICT was first used in 1980s. According to some internet sources it can be concluded that after the year 2018 the growth of inter ICT sector is over 5% in all over the world.

To complete the ICT services, three components are required. Namely – devices, literacy and of course conduit. Using ICT is a modern approach but using it with full efficiency is an art. Incorporation of ICD needs more flexibility in turn off time and management level support. ICT provides -

1. Face to face access to technology
2. Appropriate use of modern science
3. Technology usable with affordable price that is low cost learning material
4. Preserve social values
5. Preserve cultural values
6. Maintains macroeconomic environment
7. Incorporation of technology in daily life
8. Entrenchment of educational backbone etc

The concept of Blended learning was first established in 1960s. But the term was coined by Bonk and Graham. Some synonyms of blended learning are –'Hybrid Learning', 'Mixed–mode instruction', 'web-enhanced instruction' etc. After late 60s University of Illinois discovered PLATO (Programmed Logic for Automatic Teaching Operations), which may be sited as a first example of Blended Learning approach initiative. The proper definition of blended learning was come to forth after release of *Handbook of Blended Learning* by Bonk and Graham in the year 2006. Blending Learning is an approach to education that combines online educational materials and opportunities for interaction online with traditional place based classroom methods. It requires the physical presence of both teacher and student, with some elements of student control over time, place, path, or pace. Now a day many virtual schools are running in k – 12 curriculums with pre constructed blended learning software in USA, China, Japan and UK. Blended learning has many strategies. Some of them are as follows: Flex, A La Carte, Face-to-face driver, Rotation etc. The term is learning has emerged after integration of ICT in educational sector. By the application of ICT in teaching learning process some loopholes were found that led to the emergence of blended learning phenomenon.

Though blended learning environment have some disadvantages that missing link where binder together by the application of blended learning.

Parallel growth in education sector by using ICT with blended learning approach completes the teaching learning environment. It is proven that it has that potential to change the outcome and experiences of students under the umbrella of blended learning. When these elements i.e. blended learning and ICT mended together the finest learning outcome may come out.

REVIEW OF RELATED LITERATURE

Web-Based Inquiry Science Environment (WISE) program enhances the problem solving domain of understanding very well, so that they become free to ask any question to their teacher which is an essential component of the Next Generation of Science Standards (National Research Council, National Science Teachers Association, and American Association for the Advancement of Science & American Association for the Advancement of Science) Williams et al. (2004) advocated During their study, through out that year, newly recruited teachers are struggling for making their role as a teacher in school environment, as well as the knowledge accumulation and skills development growing day by day that would allow them to be accepted by their communities of practice (Verma et al. 2008)

Works of many workers on blended learning has shown positive result indicating that blended learning has as a deep impact positive impact with student interaction and their satisfaction. Graham, Allen and Ure (2005) that blended learning have shown positive impact on understanding of pupil, pedagogy and flexibility of students. It has a positive effect on cost-effectiveness also.

Work of Collis, Bruijstens and Veen, 2003 tells about the increase of level in peer learning, active learning and child centered pedagogical approach with blended learning approach.

According to Graham et al. 2003 blended learning approach has a positive and deep impact on the culture of educational institute in relation to comfort level for using ICT in education. As per the report the level of organizational and Management support, students response and their self discipline acts as a moderator of the whole theme, that means if these criteria helps in maintaining the balance of blended learning system ICT then this may cause in resulting the best in case of learning outcomes.

According to Graham et al. 2009, Teacher education programs should contain packages full of knowledge skill and experience integrated with ICT. ICT should be used efficiently and effectively to promote students learning which can facilitate their future practice and they can integrate together pedagogy, content and ICT.

Blending in teaching is a kind of artistic work in field of education and that has been used for centuries by renounce teachers. It includes resources and activities of different kinds together within a range of learning environment. That may results in the enhancement of learners and teachers both and the learners can develop interaction and building ideas (Littlejohn and Pegler 2007)

In a comparative study in plane ICT learning and blended learning studies with ICT, it is found that students have gained much in learning techniques used with ICT. They have acquired technological knowledge and also pedagogical knowledge. In study with free service teachers in Kuwait it is found that blended learning strategies condition with ICT is proven much satisfying for please service teachers their ability to access online environment any time places where whenever they need save their time and effort and resulting in much better learning outcomes. (Alayyar and Voogt, 2012)

DISCUSSION

E-Learning has some disadvantages like inhibition of socialization process of child. This also

may acts as a communication barrier in them. Incorporation of ICT through blended learning is very much important for the perception of teachers also.

According to Porter and Donthu, 2006 this makes teacher more worthy for how to use a specific technology and his or her readiness to use technology properly. There are many advantages of blended learning techniques because hair face to face classroom and online instructions are mixed together face to face interaction contents the significant effect of tone of voice, body language, facial expression, eye contact, communication skill of teacher which is inevitable. What are the online resources helps to bloom others senses and makes classroom environment very attractive to a child. So when the two elements join together the complementary effect of one another takes place in case of education. Study of Qasem and Viswanathappa, 2016 prove that integration of ICT through blended learning has an important role in successful in implementation of technology in education. Blended learning offers flexibility in learning method and supports extensive interaction between pupil and teacher that also can manage the distance and the pace of learning in which the ICT is an is the most important part.

CONCLUSION

Through previous studies made by great scientists proves that blended learning has an excellent potential with the help of ICT to create a new world. Application of blended learning by means of ICT can help in development of

- Increasing concentration of students.
- More engagement in brick and mortar classroom.
- Enhanced peer learning capability.
- Improvement in academic achievements.
- Enhancement in academic performances.
- Improvement in in collaborative works.
- Active participation of each people of a class.
- Improvement of teacher themselves.
- Betterment of relationship between student and teacher.
- Feeling fun during learning.
- Enough feedback etc.

So this is an urgent need to implement of blended learning techniques through ICT in each and every classroom to modify an enhanced the education system does increasing the quality of education everywhere.

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RECENT TRENDS IN INDIAN HIGHER EDUCATION SYSTEM

*Dr. Sonia Sharma**

The growth in the system of higher education in India has been impressive over the years. There has been an increasing trend, both in the number of private higher education institutions and enrolments in recent years. The share of enrolment in private unaided higher education institutions has also gone up. Despite the growth in number of higher education institutions, higher education in India is seriously challenged in terms of access. The higher education sector in India currently faces challenges of expansion, excellence and inclusion. There exist rural and urban disparities, gender disparities, inter- religious group disparities, inter- state variations, disparities among social groups within religion, inter- caste disparities and disparities among income groups as well as occupation groups. The pattern of public spending on education has been a major reason for limiting the scope of educational participation for the weaker sections. Since the 1990's there has been a steady decline in the budgetary allocations made by the government to fund higher education in India. The various models of Public- Private Partnership (PPP) are been explored in the Twelfth Five Year Plan Period (2012-17). This paper explores the recent trends in the Indian higher educationsystem.

Keywords— *Access, Equity, Higher Education in India, Public Expenditure, Public- Private Partnership*

ACCESS IN INDIAN HIGHER EDUCATION

The higher education system in India is the third largest in the world after China and the United States of America. From less than a hundred thousand students in about thirty universities and five hundred colleges at the time of independence, Indian higher education presently includes 633 universities, 67 institutes of National Importance and other university level institutions and 36,239 colleges (UGC Higher Education at a Glance, 2013). The growth in the system of higher education in India has been impressive over the years. It can be attributed to a significant increase in the number of universities and colleges, enrolment of students in terms of Gross Enrolment Ratio (GER), enrolment of students at various levels of higher education and for various faculties and disciplines, enrolment of girls, Scheduled Castes (SC's) and Scheduled Tribes (ST's), number of teachers at various levels of higher education, and number of students engaged in research. There has been an increasing trend, both in the number of private higher education institutions and enrolments in recent years. The share of enrolment in private unaided higher education institutions has also gone up.

The access to higher education is generally measured by the Gross Enrolment Ratio (GER) in higher education. Despite the growth in number of higher education institutions, higher education in

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India is seriously challenged in terms of access (Chitnis, 2002). The benefits of higher education in India still remain outside the reach of a vast majority of the people (Beteille, 2008). The higher education sector in India currently faces challenges of expansion, excellence and inclusion. In its Twelfth Five Year document, the University Grants Commission (UGC) observed that: Considerable challenges still remain despite significant increase in enrolment levels and reduction in overall social group disparities. Access to higher education is still less than the minimum international threshold levels, distribution of institutions is skewed, enrolment in public universities is largely concentrated in the conventional disciplines whereas in the private self-financed institutions, the student enrolment is overwhelmingly in the market-driven disciplines (UGC Twelfth Plan Paper, 2012-17, p.1-2). It has been envisaged that under the national programme

Rashtriya Uchchatar Shiksha Abhiyan (RUSA)' the aim would be to achieve a national level Gross Enrolment Ratio (GER) of 25 per cent by the end of the plan in 2017 (ibid.) and to 30 per cent by the year 2030 (MHRD Annual Report, 2011-12).

EQUITYININDIANHIGHEREDUCATION

Growth with equity is considered as one of the objectives of planning in many developing countries. Equity without growth is a stagnant cesspool, wherein only misery, ignorance, obscurantism and superstition can be equally distributed. Growth without equity leads to the accentuation of structural disequilibrium and, chronic persistence of low purchasing power of the mass of the toiling people constrains growth itself (Raza&Premi, 1987, p.1). Thus, a concern for equity in education is not only a moral commitment but also important for nation building. Equity' is quite often used interchangeably with the term equality'. Though all human beings are not equal in every respect but they should be treated equal in relevant aspects of life. In fact, they should be treated differently in those respects where they are, unequal. Since inequalities exist in the access to education, it wouldnot be justified to treat the beneficiaries of education equally, as ¯equal treatment of the unequals is an insidious way of perpetuating inequality (Tilak& Varghese, 1985, p.8). In higher education ¯equity implies the ability of being fair and impartial to the brightest students so that they may study in the best of universities, regardless of their socio- economic backgrounds (Aggarwal, 2009, p. 51). Equity in education is necessary as it contributes to the long term development of the country. If equity is not addressed to it would perpetuate ideas and world views in favour of the privileged groups, createstereotypes and prejudices, skew the resources of the country in favour of the wealthy and politically influential, limit the upward mobility for certain groups and this inequality may get reproduced over several generations, thus leading to inequalitytraps ofhopelessnessandunderachievement among the marginalized (The World Bank, 2006).

India has committed itself to be an egalitarian society where equality in general and equality of opportunity in particular is accepted as a constitutional obligation of the state. There are several provisions in the Indian Constitution concerning equity in education. Following the spirit of the Constitution, a number of policies and programmes have been initiated by the Government of India to promote equity in education with respect to the marginalized groups. Despite the rapid expansion, the Indian higher education is inequitable on both traditional (based on caste and gender) and modern (class and region) axes (Deshpande, 2012). There exist rural and urban disparities; gender disparities; inter- religious group disparities; inter- state variations; disparities among social groups within religion; inter- caste disparities and disparities among income groups as well as occupation groups (Aggarwal,

2009, p.51-52). The pattern of public spending on education has been a major reason for limiting the scope of educational participation for the weaker sections. In order to promote social inclusion in higher education, the Government of India has been following the policy of affirmative action through reservations, i.e. managing quotas on the basis of caste and community. Despite reservations being the mainstay of Indian programmes for social redress, benefits especially in higher education have accrued to the mainstream (largely the upper castes) creamy layer' (Deshpande, 2012).

Private higher education in India has been demand- absorbing' and has contributed a significant share to enhance access to higher education in the country (Levy, 2008, p.18).

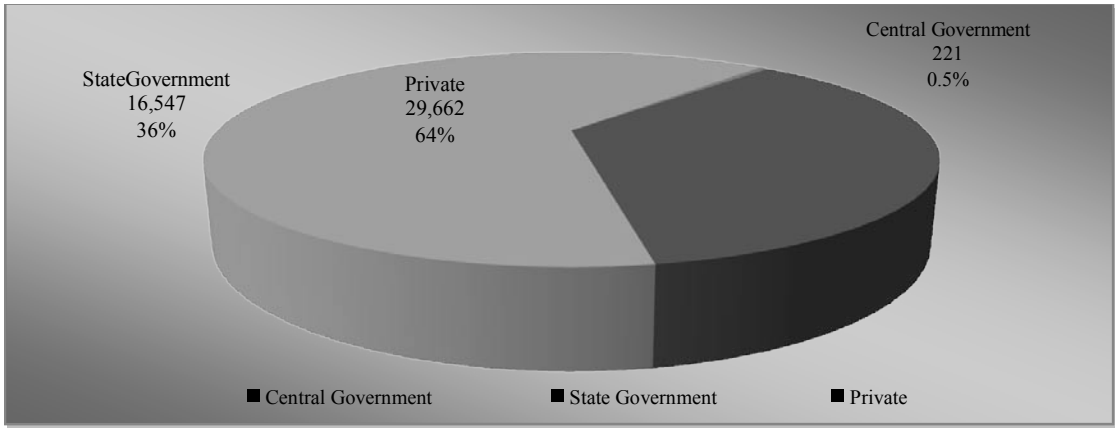
However, it has worsened equity by making higher education unaffordable for the poorer groups especially the lower castes and Muslims. By promoting professional and technical education, it has made the disadvantaged groups further disadvantaged. On the whole, it has been found that the Muslim minorities do not benefit from affirmative action even though they are lagging behind the other disadvantaged groups in highereducation.

PRIVATIZATION OF INDIANHIGHER EDUCATION

Privatization in India has taken three forms– firstly, as the establishment of (new) private institutions by private trusts and bodies; secondly, by privatization of existing institutions through the transfer of management from the government to private trusts, and finally, through financial privatization which means reduction in government support to aided institutions compelling the managements to recover the costs from students directly through fees and launching fund- raising self-financing courses, usually in the professional and technical fields (Power &Bhalla, 2004; Tilak 2008).

In India, some kind of private system of education existed even during the ancient and medieval period. After independence in 1947, private education continued to co- exist with the state sector but private higher education remained peripheral and public education remained dominant with a very few exceptions. At the turn of the twenty-first century private higher education developed as one of the most dynamic and fastest-growing segments of post-secondary education (Altbach, 1999). Various types of private higher education came into existence in India at different points of time in the form of private institutions, private-aided institutions, self financing institutions, private universities and deemeduniversities

Figure 1: **Type -Wise Distribution of Higher Education Institutions in 2012**

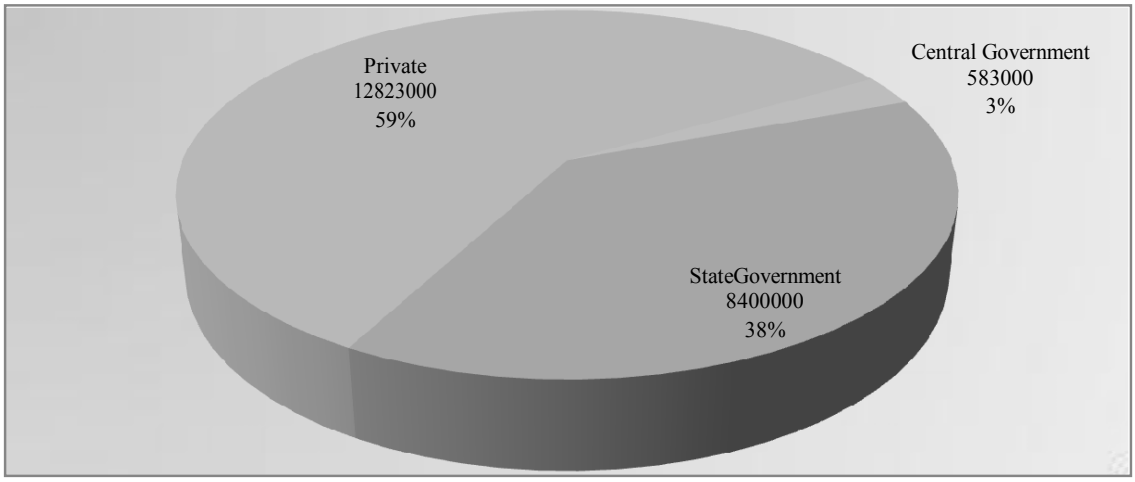


Source: Twelfth Five Year Plan (2012-17) - Social Sectors

The number of private higher education institutions has increased from 18,145 in 2007 to 29,662 in 2012. Thus, the increase has been more than 60 percent during the five year period (MHRD, Annual Status of Higher Education of States and UTs in India, 2013). It can be seen that the share of the private sector in the total number of higher education institutions is 64 percent in 2012 as illustrated in Figure 1.

It can be seen from Figure 2 that the share of private sector higher education institutions in total enrolment in 2012 stood at 58.9 percent, and central and state government universities accounted for 2.6 percent and 38.6 percent of the total enrolments, respectively (MHRD, Annual Status of Higher Education of States and UTs in India, 2013).

Figure 2: **Share of Higher Education Institutions in Enrolment in 2012**



Source: Twelfth Five Year Plan (2012-17) - Social Sectors

FINANCINGOFHIGHEREDUCATIONININDIA

During the 1960‘s and 1970‘s, educational expansion was financed by increase in public expenditure. Till the 1970‘s it was felt that public expenditure and investment in education could be recovered by the society through increased productivity of labour force and consequent receipts by the government (Tilak, 2004a). However there was a declining trend in educational expenditure in the early part of 1970‘s due to non- realization of expected results by education investment (Tilak 1984); brain drain and unemployment among the educated (Psacharopoulos & Woodhall, 1985) and the need of public funds for other sectors such as health, nutrition, rural development and agriculture. In the beginning of 1980‘s neo-liberal economic reform policies unveiled in many developing countries, considering that the private sector is ipso facto efficient and desirable and this led to eclipse of Keynesianism and rise of an emerging system of free market philosophy (Tilak, 2004b,p.13).

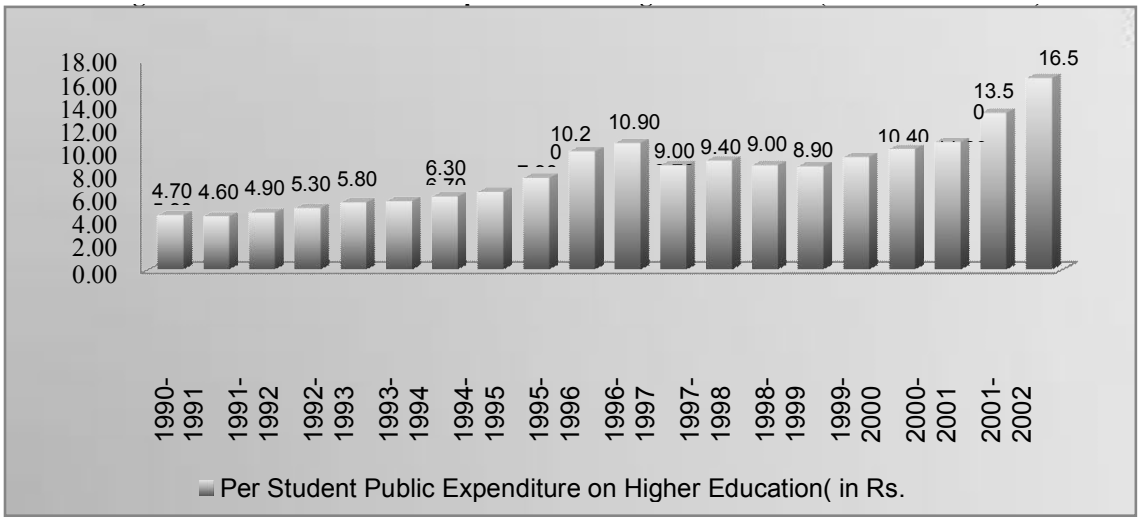
Public Expenditure on Higher Education in India Public expenditure on higher education in India increased in the 1950‘s with a growth rate of 7.5 percent perannum, witnessed a golden period during the 1960‘s with a real growth rate of 11 per cent per annum, declined to 3.4 percent real growth rate during the 1970‘s and recovered during the 1980‘s with an annual growth rate of 7.3 percent. It turned out to be 12.3 percent and 5.4 percent for the years 1990-91 and 2004-05

(Prakash, 2007). From 1989-90 to 1994-95, the share of higher education in plan expenditure declined from 12.6 per cent to 6 per cent. Similarly, the non- plan expenditure declined from 14.2 per cent to 11 per cent (Tilak,1996).

PER STUDENT PUBLIC EXPENDITURE ON HIGHEREDUCATION

It can be observed from Figure 3 that per student public expenditure on higher education has been declining sincethe1990's.Thoughthe¯perstudentpublicexpenditure on higher education in nominal terms has increased in the post-independence period but the real expenditure has registered a negative growth for the period from 1990-91 to 2002-03. However, the trend towards the public expenditure per student in the 11th plan period has been encouraging and needs to be continued for improving quality education (MHRD RUSA, 2013, p.45).

Figure 3: Per Student Public Expenditure on Higher Education (1990-91 to 2009-10)

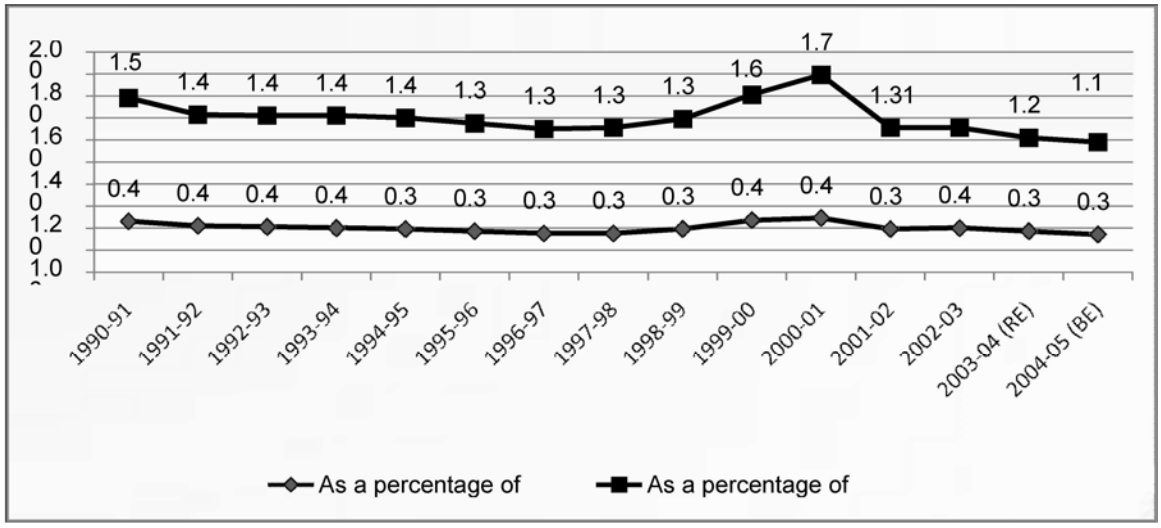


Source: RUSA 2013,MHRD, GoI

PUBLIC EXPENDITURE ON HIGHER EDUCATION AS A PROPORTION OF GNP AND TOTALBUDGET

The Education Commission (1964-66), recommended in its report that¯[W]e should strive to allocate the largest proportion of GNP possible to educational development (p. 889). This recommendation was accepted and resolved by the Government of India in the National Policy onEducation 1968 and reiterated in the National Policy on Education 1986. From Figure 4, it may be seen that public expenditure as a proportion of GNP fell from 0.46 per cent in 1990-91to 0.35 per cent in 1997-98. Thereafter, a nominal increase in the ratio took place but it further declined to 0.34 per cent in 2004-05 (BE).

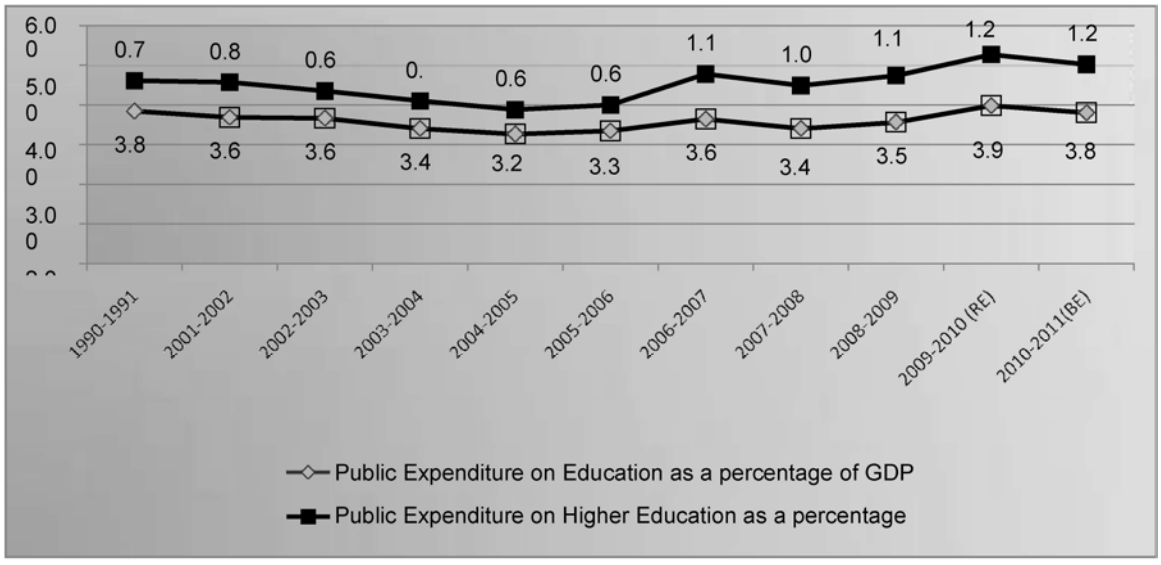
Figure 4: Public Expenditure on Higher Education as a Proportion of GNP and Total Budget (1990-91 to 2004-05)



Source: Analysis of Budgeted Expenditure on Education, MHRD, GoI (various years)

Since the 1990's there has been a steady decline in the budgetary allocations made by the government to fund higher education in India. There has been a markeddecline in its percentage share in total budgeting expenditure from 1.58 percent in 1990-91 to 1.18 percent in 2004-05 (BE).

Figure 5: Public Expenditure on Education and Higher Education as a percentage of GDP (1990-91 to 2010-11

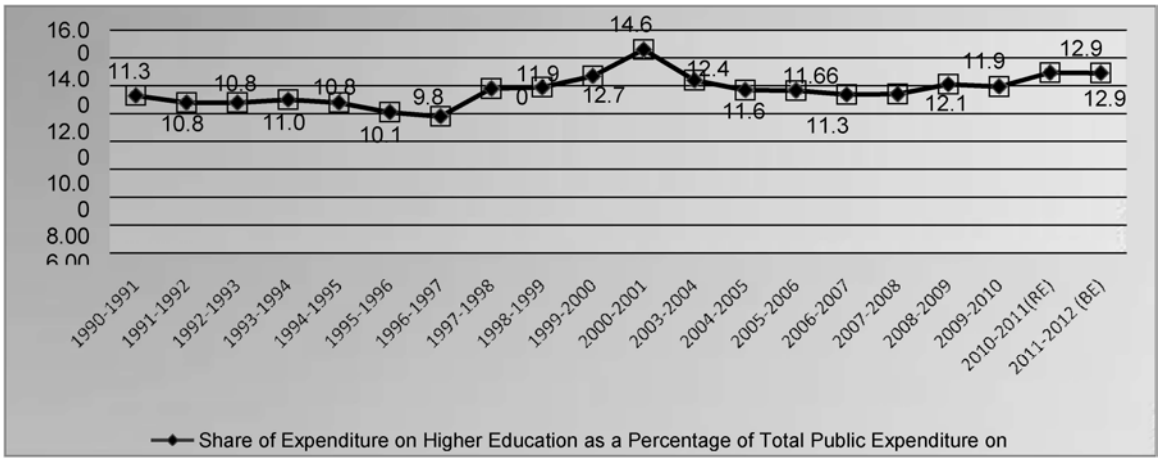


Source: National Accounts Statistics, 2012 published by CSO

Figure 5: Note- Analysis of Budgeted Expenditure on Education (various years), MHRD, GoI GDP figures are on the base year 1990- 00 series. From 2004-05 onwards GDP figures are on the base year 2004-05 series).

Furthermore, it may be noted from Figure 5 that public expenditure on education as a percentage of Gross Domestic Product (GDP) has not exceeded 3.98 percent since 1990-91. The public expenditure on higher education as a percentage of GDP is even lesser and has not risen above 1.29 percent since 1990-91. Figure 6 depicts the share of expenditure on higher education as a percentage of total public expenditure on education during the period 1990-91 to 2011-12.

Figure 6



Source: Analysis of Budgeted Expenditure on Education (various years), MHRD

PUBLIC - PRIVATEPARTNERSHIP (PPP) IN HIGHER EDUCATION

Under the PPP model of financing higher education, the risks and rewards of the project are shared by both (Agarwal, 2009). The World Bank (1994) suggested that ¯greater efficiency and high quality maybe achieved if the mobilization of greater private financing of higher education is encouraged (p.7). The UGC Twelfth Five Year Plan (2012-17) document has stressed the need for adopting newer models of PPP that would adhere to the equity and affordability policy of the government. It suggested that PPP could be adopted through four models viz. the basic infrastructure model, outsourcing model, equity/hybrid model, and reverse outsourcing model (UGC, 2012, p.79-80). However, the operation of such partnership models generally favours an increase in the degree of privatization, transferring public resources to the private sectorcausing public pauperization and private enrichment‘ (Tilak, 1991). Such models are nothing but business deals. Thus, public spending on higher education is a crucial element in financing of higher education.

CONCLUSION

Due to the decline in the state sector, the demand for private higher education has risen in India at the end of the 20th century. These institutions have been successful in providing access to higher education and prepare skilled personnel that meet the demands of the global marketplace. Not only have the private institutions emerged on the bloc, but even the public universities are being privatized‘

due to theshrinking fiscal space for higher education in the public budgets. There has been a significant shift from philanthropy to profits in setting up private institutions. Therefore, there is a need to evolve a sound public policy for private higher education. This would be necessary for making the private higher education fulfil the public mission and social mission of providing education; help build a civil society; promote sustainable development; fight poverty; serve the job market, expand access to qualitative and innovative highereducation and finally serve as models for public higher education reform in India.

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ICT A BOON IN FASHION DESIGNING EDUCATION

*Manmeet Kaur**

Every one in this world wants to look beautiful and attractive and fashion designing is a kind of art which can make you look beautiful and attractive. Fashion designing totally depends on power of experience and imagination, more you can imagine the designs more you will become creative and expert in this field. What if your imagination becomes real whenever you want it to be, it makes your work more easer and expandable. For this ICT as a tool is perfect. It is many set of technological tools and resources used to communicate, and to create, analyze, store, and manage information". These technologies include computers, the Internet, television, radios and telephony (UNDP, 2000). Moreover teaching becomes more attractively and learnable for the learners at any level of education with ICT. In todays world technology is acting a major role in the development of different fields of education. Now as demand and style of clothing is changing with coming generation and to fulfill this demand we need to make coming fashion designers to learn using less time consuming but effective methods, here the role of ICT comes into focus. Software like CAD is very effective tool in designing dresses and making their 3D models. M-learning is convenient in a manner that it can be accessible from virtually anywhere M-learning basically focuses on the easy access of information and data during mobility of the learner, by interacting with portable technologies It makes the work much easier and creative as new generation of learners are more comfortable with new and complicated technology.

***Keywords**: Imagination, creative, technology, education.*

INTRODUCTION AND DEFINITION OF ICT

Information and communications technology (ICT) is an integration of telecommunications and computers, as well as necessary enterprise software, middleware, storage, and audiovisual systems, that enable learner to access, store, analyze, transmit, and manipulate information to unified the information with communication systems. (FOLDOC. 2008-09-19).

In recent years there has been a quite good interest in how computers and the Internet can best be utilized to improve the efficiency and effectiveness of teaching and learning process at all levels. But ICTs are more than just these older technologies which is one directional in use such as the radio and television, although now given less attention, have a longer and richer history as instructional tools but now used in such a way that it is acting in bi-directional, learner to information and information to learner. Moreover, some of the technologies are used in combination rather than as the sole delivery mechanism. For instance, the case of Kothmale Community Radio Internet explains how

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we can uses a unique combination of radio broadcasts, computer and Internet technologies to facilitate the sharing of information and provide educational opportunities for the benefit of learners or users in rural community in Sri Lanka(World Bank,2001). Similarly, the Indira Gandhi National Open University in India combines the use of electronic devices like printer to get prints of contents , recorded audio and video learning aids, broadcast online classes for distance education through radio and television, and audio conferencing technologies. (Ignou)

Information and Communication Technologies (ICT) acts as a unique tool because it is made up of combination of many hardware and software components like the networks, media for collection, storage, processing, transmission and presentation of information in the form of voice, data, text and images with some special hardware and software.

ICTs can be divided into two components:

- Information and Communication Infrastructure (ICI) which includes the physical telecommunications systems and networks which covers the cellular, broadcast, cable, satellite, postal which are utilized by the services like Internet, voice, mail, radio and television.
- Information Technology (IT) it covers the hardware and software required for information collection, storage, processing and presentation (World Bank 2002)

Integration of ICT in education means the use of ICT as a powerful tool by the teachers and learners during teaching and learning process. When useful, technology is integrated in the curriculum in such a way that it aligns teaching goals with learner's requirements it makes teaching as well as learning process very unique. The entrenchment of ICT as part of education during the entire process of teaching and learning across all subjects in all levels of education institutions is only possible by integrating ICT with education..

In other words, ICT is part and parcel of education and it delivers a major impact to the way of doing things for all the teachers and students. The main aim for integrating ICT in education is to make learner more creative, innovative and productive from all disciplines. Now as demand and style of clothing is changing with coming generation and to fulfill this demand we need to make coming fashion designers to learn using less time consuming but effective methods, here the role of ICT comes into focus. Software like CAD is very effective tool in designing dresses and making their 3D models. It makes the work much easier and creative as new generation of learners are more comfortable with new and complicated technology.

M-LEARNING

Mobile learning which is now known as **M-learning** is learning of large contexts, through social and content interactions, using mobile, laptops, tablets and user or learner friendly electronic devices.(Crompton, H. 2013). M-learning technologies include all those handheld electronic devices which are user friendly like computers, MP3 players, notebooks, mobile phones and tablets. M-learning basically focuses on the easy access of information and data during mobility of the learner, by interacting with portable technologies. Using mobile tools for creating new ideas as learning aids to have good materials becomes an important part of informal learning. (Trentin G. & Repetto M. (Eds) 2013).

M-learning is convenient in a manner that it can be accessible from virtually anywhere. Sharing

of information and data is almost instantaneous among everyone using the same content and also brings strong portability by replacing hard data in form of books and notes with small devices, filled with ample of learning contents.

BENEFITS & ADVANTAGES OF MOBILE LEARNING

- **Convenient:** Information is easily accessible to the learner without any limitation to any one place or time
- **Engaging:** Content interactions can be personalized by the learner
- **Collaborative:** Learners can interact with online communities, such as forums and chats
- **Bite-size:** Smaller content of information by the learner or user help prevent cognitive overload
- **Accessible:** The classroom is everywhere which allows a learner for a wider reach
- **Cost Effective:** Existing content can be reused again and again by the user or learner.

INDIAN SCENARIO OF FASHION DESIGNING AND TECHNOLOGY

Indian fashion designing scenario is well known for its cultural heritage, elegance, and colourfulness. It brings out the subtlety and sweetness that has sustained through innumerous decades.

For not solely is it snug, refined and esthetically lovely however it's conjointly evolved over time. creating a sweeping surge into today's international situation, the style business in Asian country is an consolidation of dynamic conventions. From ethnic to western, trousers tunic to high-street fashion; rag trade in Asian country has undoubtedly skilled a environment of transformations. unneeded to mention, the style business in India and Asia has been privileged by thousands of years of made tradition behind it and therefore the data because the vogue of sewed clothes have existed in India ever since ancient history.

India is one among the quickest growing economies within the world and is within the core of digital revolution with fashion being at the frontier of it. Millennials and Generation Z is additional tech-savvy than ever. The exposure to social media associated good technologies within the digital age has awaked an entrepreneurial ambition in folks that was earlier lacking. in step with Randstad Work monitor survey, 83 per cent of Indian personnel would love to be entrepreneurs. This information is over the world average of fifty three per cent. the information additionally recommended that seventy nine per cent of Indians believe that Technology has created it easier for them to become entrepreneurs.

Not solely e-commerce however platforms like eBay, Etsy, Kickstarter and even Instagram has created it easier than ever to launch a product. The ICT is proving to be a boon for fashion designing professionals. Role Models like Mark Zuckerberg, square measure ennobling folks to pursue entrepreneurship and a robust presence on social media be it Facebook, Instagram, Snapchat or twitter may be a should for promotion and growth. Millennials, baby boomers and Generation Z alike have exposure to leadership coaching exercises and technologies. they require to be employed and mix into the startup and self-employment culture. one among the key reasons for rising in entrepreneurial culture is additionally the age issue. Entrepreneurship is viable once one doesn't ought to worry regarding their kids or their future or mortgages and loans and fogeys will still offer financial help to begin up the venture. thus it is sensible to begin young once you square measure energetic and motivated to accommodate nonexempt hours and undivided attention will be dedicated to work.

SOFTWARES AND ITS APPLICATION IN FASION DESIGNING

Computer-aided designing with production has been a boon to business, apparel industry ,garment industry, fashion business, rag, trade industry, ever since it had been incorporated into coming up with industry throughout the late eighties. Softwares like

1. **Blender:** Blender is that the free and open 3D creation suite. It is used in creating 3D modeling rigging, animation, simulation, rendering, compositing and motion trailing, even video piece of writing and game creation.
2. **CorelDRAW:** One Experiences a whole resolution for technical communication professionals and information employees - from accessing 3D styles. It advance your style skills even a lot of with new, high-caliber tools, as well as new Symmetry mode, redesigned Fill and plenty of a lot of to be told.
3. **Digital Fashion Pro CAD fashion style software:** Digital Fashion professional is the All-In-One Complete CAD Fashion style package for coming up with your own covering line & making skilled fashion sketches. Digital Fashion professional is employed by incalculable of skilled fashion designers, fashion labels, covering lines, fashion style academics, aspiring designers & beginners.
4. **Tailornova The world's smartest 3D fashion style software package:** Tailornova could be a patent-pending on-line fashion style software package that helps you produce unlimited styles easier and quicker than ever. Visualize your creations in 3D and find custom-fitted patterns in seconds. From sketches to 3D samples to patterns, instant sensible fashion style templates permit you to make original styles with one click in seconds.

Similarly Gerber, Tukatech, Lectra, Adobe Photoshop, creative person, Digital FashionPro and Wilcom etc area unit being employed extensively within the fashion culture. analysis on Fashion Technologies indicates that package system allows the designers let's say & visualize their styles in each 2 and 3 dimensions. Digitizing systems enters the hand stitched paper pattern into the pc with the assistance of digitizing pill. Body scanning system allows manufacturing according to given information & offers an on the spot link to 3D style and pattern creating. Pattern creating & Grading system not solely allows the designer to make desired patterns however also can upgrade it to completely different sizes. Marker creating systems allows to set up for cutting the pattern items for a selected garment vogue by egg laying out the items on the marker. Texture Mapping System allows the styleers to simply produce completely different textures on the garment design.

CONCLUSION

To conclude, the technological advancement, since it influenced the other subject areas, the fashion designing technology additionally derived its share and therefore the forthcoming developments might be influence and may bring the miracle within the coming days . Research and Analysis in to wearable technology will open up many new globe of possibilities. Costumes created off abric that may convey information to a centralised system are going to be succeeding best development in fashion style technology.

The use of such technology in teaching of fashion designing programmes the quality of teaching will increase effectively. A well-designed curriculum which is the combination of fashion desigining contents and ICT is essential to meet the demand of today's learners.

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ICT IMPACT IN TEACHING LEARNING PROCESS

Gulshan Kumar & Dr. Sonia Sharma***

Information and Communication Technology (ICT) in education is the mode of education that uses information and communications technology to support, enhance, and optimize the delivery of information. ICT can lead to an improved student learning and better teaching methods. In this paper an attempt is made to highlight the role of ICT in teacher education. Also explain the various types of ICT based learning environment. The teaching-learning process has been upgraded with the aid of computers in many ways from traditional method to modern system. Substantiating these trends, today's teaching-learning is being conducted through e-learning, mobile-learning, web-based learning, multi-media learning, etc. Some suggestive ideas for designing the teacher education course are also presented.

Keywords: *ICT, E-Learning, M-learning, Teleconferencing, Web-Based Training(WBT) etc.*

INTRODUCTION

Teachers are at the core of any living society. Technologies play an important role in training programme of teachers. Students accesses knowledge and information through TV, digital media, cable network, internet and social media i. e. Facebook, Twitter, Whatsapp, Linkedinn, Igo, Line, Wechat etc. ICT is very important for Preservice teacher education programme in the 21st Century. Without proper knowledge of ICT teacher cannot perform in his/her class room and it could not be said to be a complete one.

As teacher education is an important area of concern a comprehensive, dynamic and responsive system in the contexts of teacher general. Thus, education In order to enable the teachers to act as catalyst in the presses of developing the future citizens, the teachers' education programme needs to be revised and revamp. 21st century is the age of liberalization, privatization and globalization. In this context, quality assurance is demanded everywhere and quality comes from quality education. A teacher forms an education system. Therefore, this fact should take the responsibility of quality reforms at the grassroots and it is only the ICT based education which ensures quality reforms by the teacher educators because human resource are so kind of development as compared to other resources. Modern world is a world of technological revolution and as every revolution reflects every aspect of human life and affects it immensely, It is needless to say that education has also

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been influenced by these technological advances. In today' world teachers need to be equipped not only with subject special capacity to assist students to meet the demands of the emerging knowledge View there is an increasing need to incorporate ICT based education to need the challenges of globalization.

WHY DO WE NEED ICT?

ICT have the potential to enhance access, quality and effectiveness in education in general and to enable the development of more and better teachers in particular. A personal computer is the best known example of the use of the ICT in education, but the term multimedia is also frequently used.

The face of classroom is changing. The teachers should prepare to keep up with technology utility in the classroom. ICT is not only an essential tool for teachers in their day to day work, but also offers them opportunities for their own professional development.

In conventional teaching most of the time is consumed for the input output and less time left for the process. But in teaching with ICT the input and output time is reduced and process time is increased. When the process time is increased, time of student's activities, discussion, correlation with other subjects, brainstorming and learning etc will increase.

Information and communication technology in education can be used as a communication tool to improve student learning and better teaching techniques. With the advancement of technology in education uses computers, the internet, and multimedia as the medium of communication.

TYPES OF ICT BASED LEARNING ENVIRONMENT

Information and Communication Technology (ICT) in education is the mode of education that uses information and communications technology to support, enhance, and optimize the delivery of information. ICT can lead to an improved student learning and better teaching methods. ICT is an extension of Information Technology.

a) ***M-learning:*** 'M-learning' is the follow up of E-learning which for its part originates from D-learning (distance education). M-learning is the delivery of learning to students who are not keeping a fixed location or through the use of mobile or portable technology. The rapid growth of ICT makes it possible to develop new forms of this education. M-learning is the term given to the delivery of training by means of mobile devices such as mobile phones, PDA's (Personal Digital Assistants) and digital audio players, as well as digital cameras and voice recorders, pen scanners etc.

b) ***E-Learning:*** E-learning is an approach to learning and development: a collection of tools and techniques utilizing digital technologies, which enable, distribute and enhance learning. If e-learning took learning away from the classroom or campus, then m-learning is taking learning away from a fixed point. While e-learning is an alternative to classroom learning (actually e-Learning should/can be complementary to classroom learning), m-learning is a complementary activity to both e-learning and traditional learning. In one sense m-learning has been around for longer than e-learning, with the paperback book and other portable resources, but technology is what shapes today's usage of m-learning.

c) ***Teleconferencing:*** – Audio, Video, Computer and Desktop There are different types of teleconferencing audio, video, and computer conferencing including desktop videoconferencing, but they all provide some form of two-way interaction. Regardless of the exact nature of the

teleconference, a good moderator is required to keep the discussion focused and on schedule. A particularly effective teleconference technique is to have a local activity at each site that prepares participants for the broadcast event. A common way is to organize a local panel of experts to discuss the same issues covered by the main presenters, but in the local context. This allows for greater participation at each site. The most common form of teleconferencing is satellite teleconferences which involve one-way television broadcasts and two-way audio links. Digital videoconferencing provides even more interactive capability because it involves two-way audio and video transmission between each site. In a well-organized audio-conference, an agenda, the list of participants and any other required materials will be delivered to everyone well in advance.

d) ***Interactive Multimedia:*** Expanding Computer-Based Training Interactive multimedia implies two important capabilities:

1. To be able to present information in multiple modalities and
2. To allow the user to control the interaction to varying degrees depending on the nature of the program. These have to be done to the extent that almost all forms of learning are enhanced by involving multiple modalities and by having interactions.

Benefits of multimedia for learning include: increased motivation, appeal to different learning styles, more realism, facilitation of multilingual presentations, higher retention, better comprehension and improved transfer of skills. Multimedia technology makes it easy to create and capture information in different forms as well as present it. If designed properly, multimedia programs can be motivating and realistic.

Another ongoing challenge is the constant emergence of new multimedia capabilities. Even before a program is completed and fielded, it is likely that some of the multimedia features will be enhanced in newer versions of software and hardware. Because such a wide range of skills/ knowledge is needed to develop multimedia programs, a team approach is recommended.

e) ***Web-Based Training (WBT):*** The WBT uses web-based technologies for the purpose of training. WBT can be used to deliver complex training, such as a sales training course for a worldwide sales team. The main attributes of WBT are listed below:

1. Several WBTs offer mentoring and coaching services, which allow learners to interact with the instructor over email, chat forums, or videoconference.
2. Several WBTs offer learners the opportunity to interact and collaborate with peers in discussions in chat groups, collaborate on projects, or participate in online seminars.
3. Learners in remote locations can use the courses any time.
4. Multiple media such as text, graphics, video and animations are used to communicate the content.
5. Questions, quizzes, simulations and feedback provide interaction with the student.

ROLE OF ICT IN TEACHING LEARNING EDUCATION

Although teachers consult each other more frequently, the teacher more eventually decides on educational practice in his classroom. He is responsible and has the opportunity, as long as the results are satisfactory to teach in the way he pleases. However, in practice due to some constraints on the part of the teacher, the teacher educators rely on the chalk and talk method.

A component of ICT in some form or the other, and to different extents, is now an integral part of the teacher education curriculum for all students, either at the diploma level (D.Ed.) or at the

degree level (B.Ed.). Even master degree programme in education leading to M.Ed. degree have also started introducing a component of ICT in the curriculum.

At the degree level an entire paper on ICT titled "Educational Technology and Computer education" is offered to the students. So most of the teacher training institutions are equipped with an "education technology labs" and a computer lab with some or all of the following items of essential ICT hardware and software as required by the NCTE guidelines and regulations.

TV, CD/VCD player, AM Radio cum Cassettes Player, Audio video cassettes, Overhead projector, Projection screen, Slide projector, Video camera, Multimedia PC systems with monitors, hard disk drives, floppy.

1. ICT enhances the initial preparation by giving good teaching and training materials, use of simulators, Recording and Feedback in Teaching.
2. With the help of ICT, teachers can access with colleagues, schools, institutions and universities, expertise, rich resources in cyber space, NCERT, NAAC, NCTE and UGC etc.
3. ICT enables interaction with students over a physical distance.
4. Didactic software and intelligent tutoring systems can dramatically reduce the cost of teacher training.
5. ICT provides lifelong professional development by providing courses in a virtual situation, training on demand, orientation and refresher courses through videoconferencing and online.
6. ICT facilitates sharing of ideas, experience as well as collaborating on projects, and exchange materials through virtual communities.
7. ICT helps in improve Teaching skill, helps in innovative Teaching and effectiveness of classroom.
8. It also helps in improving professional Development and Educational management as well as enhances Active Learning of teacher Trainees. It is now replacing the ancient technology. As we know now-day s students are always have competitive mind. So teacher must have the knowledge of the subject. This can be done through ICT.
9. ICT helps teachers in preparation for teaching. In order to introduce ICT in pre-service teacher education different methods and strategies are applied. Different tools are used such as word processing, Database, Spreadsheet etc.
10. ICT prepares teacher for the use of their skills in the real classroom situation and also make students for their future occupation and social life. It used as an „assisting tool for example while making assignments, communicating, collecting data & documentation, and conducting research.
11. ICT as a popular tool for organization and management in Institutions. Teachers must provide technological support to learn using motion picture, animation, simulation training which helped student teachers to give model presentation. If the teacher is highly equipped with technology, the student will also be equipped with technology.
12 ICT is plays an important role in student evaluation and it is store house of educational institution because all educational information can safely store through ICT.
13. ICT helps Teacher to design educational environment and to identify creative child in educational institute.

CONCLUSION

ICT helps the teacher to update the new knowledge, skills to use the new digital tools and resources. By using and acquire the knowledge of ICT, student teacher will become effective teachers. ICT is one of the major factors for producing the rapid changes in our society. Technology implemented as an integral component of teaching and learning strategies formulated to meet learner and discipline needs is most likely to efficiently fulfill desired learning outcomes. Information and Communication Technology in Teacher Education in 21st Century as because now teachers only can create a bright future for students. Teachers in India now started using technology in the class room. Laptops, LCD projector, Desktop, EDUCOM, Smart classes, Memory sticks are becoming the common media for teacher education institutions. Information Technology enables grater imaginative understanding through increased access to information and new ways of accessing and communication information.

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M-LEARNING IN INDIA

*Manpreet Kaur**

The purpose of the present study is to explore the strength, limitation and also discuss the initiative regarding M-Learning in India. This paper presents a synthesis of the research in the field of mobile learning initiative and policies. It presents the case of India, which has immense potential due to its increasing mobile market size and internet user base. The paper begins with discussing how mobile learning can aid in learning, its strengths and currentchallenges. It then progresses to analyse the current policy catering to mobile learning in the Indian education system. The focus of Indian education system has been to build basic infrastructure andprovide basic literacy for all.

INTRODUCTION

Mobile technology has been developed rapidly in almost every sector nowadays. One of the sectors that show development is education. Especially due to the mobile phones and handheld computers, it is very easy to reach the information. Mobile learning, also known as m-learning, is a new way to access learning content using mobiles. Mobile learning supports, with the help of mobile devices, continuous access to the learning process. This can be done using devices like your phone, laptop or tablet. You can learn wherever and whenever you want! With the advent of mobile learning, educational systems are changing. Mobile learning (M-learning) is an umbrella term usually used to describe learning that happensthrough the interaction with content in devices like mobile phones, tablets, palmtops, Personal digital assistants (PDA). McQuiggan et al. (2015) talked about mobile learning being less about physicaldevices themselves and more about the experience and opportunity afforded by the evolution ofeducation technologies. They described it as "an anywhere, anytime learning enabled by instant, on demand access to a personalized world filled with the tools and resources we prefer for creating ourown knowledge, satisfying our curiosities, collaborating with others, and cultivating experiencesotherwise unattainable

REVIEW OF LITERATURE

Derakhshan (2009, 77-83)'s study aimed to explore how university students and faculty use handheld devices intheir learning and teaching, According to the results, students indicated higher levels of interest in using mobiledevices than faculty members. It may be thought that, students are more familiar with the digital language ofcomputers, handheld devices, and the Internet than instructors. Content was a feature in which students showedhigher interest than faculty. It may

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indicate that faculty members have not yet accepted handheld devices as anappropriate tool to deliver learning materials.

Parsons (2010, p.231, 242) surveyed distance learning students to determine their information access habits, mobile device usage, and attitudes towards future changes. The results showed that distance learners want to accesselectronic materials, but are not yet using mobile devices in education, instead primarily using laptops and desktopPCs, despite most respondents owning a mobile phone and almost half having an mp3 player. Reasons weretechnological or compatibility of material. Half of the respondents have bought or would buy mobile devices for education.

Hussin et al. (2012)'s study focused on basic readiness, skills readiness, psychological readiness and budgetreadiness of students at two different universities in relation to mobile learning, and the results showed that thestudents were familiar with computing and communication skills and they welcomed the idea of integration mobile learning in education. But they were uncertain about the financial issues (p. 276, 282).

Akour (2009, p. 12) focused on students at institutions of higher education in order to understand students'perceptions of mobile learning and factors that influence their acceptance of mobile learning. The results show thatthe external factors of student readiness, quality of service, extrinsic influence, and university commitment aredeterminants of mobile learning acceptance (p. 210).

The results of Croop (2008)'s study which was related to student perceptions and attitudes toward mobile learning showed that students wanted more mobile access through wireless network for laptop computers but were not interested in expanding mobile learning through the use of other mobile devices (p. 135)

OBJECTIVE

To know the strength and limitation of M-learning in India

To know the initiative regarding M-Learning in India

METHODOLOGY

This paper based on descriptive data .

Strengths and Limitations

McQuiggan et al. (2015) note the following as the general benefits seen in mobile learning:

1. **Ability to learn on the go:** Mobile devices do not restrict the learner to any context be it the walls of the classroom or the world outside it. It truly makes learning independent of the time and location.
2. **Reach undeserved children and schools:** The low price of mobile devices, especially phones(almost 6 times cheaper than a desktop PC) can cater to the low purchasing power of rural populations in various parts of the world. This outreach and penetration has the potential to bridgethe digital divide in the current generation.
3. **Improve higher order thinking skills:** Mobile devices combined with internet can foster the much talked about 21st century skills: Problem solving, Communication, Collaboration and Creativity. One example in use the Eco MOBILE (http://ecolearn.gse.harvard.edu/ecoMOBILE/design.php) project where students can take their mobile phones on a field trip to a real pond environment. Powered by the integration of AR andprobes for data collection from the environment, EcoMOBILE provides students with realtime information about the environment which helps them

conceptualize and discuss and hypothesize complex relationships between various environmental parameters.

4. **Support alternate learning environments:** Mobile devices can support learning in alternate learning environments like flipped classrooms, blended learning environments, virtual environments, homeschooling, etc.

5. **Enable personalized learning:** Mobile devices can be used to present learning content at the right level of the learner (not too easy and not too challenging), and also at a pace that is determined by the learner.

6. **Motivating students**: When students have a perceived control over their learning space and materials, they tend to be better engaged (Shernoff et al., 2003). Having their own devices allows a sense of control, if at all partial, over the learning environment and can lead to higher engagement levels in the interaction and can potentially keep the students motivated in the long run.

Mobile learning comes with its own set of unique challenges. McQuiggan et al. (2015) present the following as some of the general challenges faced in mobile learning:

1. **Differentiated access to devices and internet:** This refers to the availability and cost of broadband in schools and homes which can pose a hurdle for low income families and rural areas. Procuring the devices in the first place involves a cost factor which might prohibit under-resourced schools and low income families to invest in such technologies. Thus access to devices in such a case might not be equal and create a divide among those who have and those who don't.

2. **Use must be monitored:** While technology is being used in classroom or outside of it, they use needs to be monitored in some way. Mobile devices with internet present the possibility of being a distraction, being misused or used for the wrong reasons. There are health concerns related to overuse, privacy concerns about oversharing personal information. Use of such devices in schools would increase their responsibility to educate the learners and make them aware of the misuse. There must be an informed policy guiding the use of such devices in classrooms. Parents and teachers must be informed about the research and implications of using such devices so that they can partake in the process of effective use of mobile technology.

3. **Prevailing attitudes and prejudices against using technology for instruction:** Johnson et al. (2012) shared the findings about prevailing attitudes and prejudices against using technology for instruction and noted that the system remains in a way that reinforces traditional educational methods. Effective incorporation of mobile technologies involves discarding existing structures and many stakeholders are resistant to make this shift. There are still laws that prohibit the use of mobile technologies in the classroom categorically. This was demonstrated in in New York (2006) when city mayor Michael Bloomberg banned the use of cellphones in the city's public schools. Such actions might lead to complete dismissal of mobile technologies without harnessing its true potential. A more informed discussion needs to be done at the policy level and the use allowed, with guidelines specified on the use inside school. Benefits like Bring Your Own Device (BYOD) need to be considered while creating policies for mobile learning. McQuiggan et al. (2015) presented the case of schools in Forsyth County in Georgia (2014), which reported less in-class texting and off-task behaviour on cellphones when they had BYOD for schoolwork.

4. **Limiting physical attributes:** Having smaller size means having lesser capabilities as compared to a PC or a laptop. Smaller touch interface, limited memory, smaller screen size all can make them more difficult to use.

5. Device sharing in a group: Sharing devices in a group over one to one usage can impact the functionalities and benefits. Roscorla (2011) suggested that in the above case, using them could resultin less engaging and more difficult experiences. The learning here is less personalized and more shared.

6. Ways of implementation impacts their effectiveness: Dede et al. (2014) noted that if we limited the implementation to a model of acquisition and distribution of mobile phones, then the technology won't work wonders by itself. The system will have to mould itself in order to integrate the technology, curriculum and pedagogies will have to be shaped and the ideas of classrooms andlessons will have to be rethought to maximize the effectiveness of mobile device integration andrealize the benefits mentioned above.

INDIA AND MOBILE LEARNING

Why is India special?

This literature review explores how education and learning can happen through mobile phones inIndia. India is a land to 1.28 billion people. It is also the 3rd largest smartphone market in the world(Pathak, 2015). According to a report published by Telecom Regulatory Authority of India (TRAI,2015), the total number of mobile phone users in India was 952.34 million out of a total of 979.21million (mobile + wireline) users as per January, 2015. The monthly growth rate was 0.89%.Interestingly, 58.11% of the users belonged to an urban population while a comparable 41.89%belonged to rural areas. According to IAMAI's report, India is also the 2nd largest number of internetusers (354 million) by the end of June 2015 (Dazeinfo, 2015). 213 million of those accessed internetfrom their phones (60% of the total internet users) and a sizeable chunk belonged to the ruralpopulation of India. The number of mobile internet users is estimated to go up to 314 million users by 2017. According to a Nielsen report (2015), 48% of the smartphone users were in the age group of 18- 24 years in 2013. In the Indian population, 442 million belonged to the age group of 6-23 and literacy rate was 73% in the age group of 7-14 and 69.3% in the age group of 15 and above as per 2011 census data (Ministry of Human Resources and Development (MHRD), 2015). While the enrollment ratios in schools have been more than 90% in all age groups, the dropout rates have been increasing significantly with the increase in age. As a teacher in a public school in Mumbai as a part of the Teach for India fellowship, I taught Science, Math and Social Sciences to 44 sixth and seventh graders over the course of two years.

Following are some examples of m-learning in the Indian context:

Flipped classrooms: This is a new education delivery mechanism that is revolutionising the education sector across the world. Flipped classroom uses a combination of face-to-face content delivery and offline learning approach to take the learning experience to the next level. It involves mastering initial concepts of a subject offline by viewing lecture videos and then interacting with experts/teachers later for clarification of doubts and for the practice of advanced concepts like projects and practical sessions where face-to-face guidance is inevitable. The offline videos can be downloaded and viewed using mobile devices and live interactions with the teachers can be done using smartphones.

Another variant of flipped classrooms that could be a boon for the education sector in India is the concept of Massive Open Online Course (MOOC). MOOC is an open source model for delivering high quality learning content/courses online to anyone free of cost, with no specific restrictions on

attendance, age, geographies and so on. Top global universities have already joined MOOC platforms or started their own MOOC initiatives. Together, they host thousands of courses. The response from Indian students and teachers for MOOC courses has been fantastic. Globally, Indians form the second-largest pool of students attending MOOC courses. Some of the leading MOOCs providers are Coursera, edX, and Khan Academy. Initiatives like MOOCs when coupled with their accessibility using mobile devices will definitely go a long way in providing high quality education anytime, anywhere to Indian masses who have been deprived of it for various reasons.

Game-based learning: Mobile games have always been a favourite pastime for people of all age groups. Game-based learning refers to the use of games as a mechanism for learning specific concepts. The advantage of game-based learning is its capability to grab and retain the interest and attention of the learner throughout the learning process. Several mobile applications for learning subjects like mathematics, English, and statistics already exist in the mobile application store. More such mobile games should be developed for subjects in all domains in order to make m-learning an interesting experience.

Personalised learning: When it comes to learning, people will have their own choice about the preferred mode of learning. For example, some learners would like to read and learn whereas others would prefer to watch a video and learn a concept. With the advancement in the field of learning analytics, it is possible to display content in a preferred mode of learning for each learner. Learning analytics refers to the application of analytics to the data created by each learner to track their personal likes and dislikes with regard to various aspects like type, format, and depth of content coverage in the courses. This would go a long way in enhancing their learning experience.

Social learning: The use of Web 2.0 technologies like blogs and communities to facilitate learning by collaboration and sharing of knowledge is called social learning. Nowadays, many social media networks like LinkedIn and Twitter have also contributed their share to learning by forming communities and conducting Q&A sessions with experts in various domains. The most prominent usage of smartphones is for accessing social media networks. Support for learning provided by the social media networks will go a long way in promoting social learning using mobile devices.

The government has already taken some initiatives to popularise m-learning in India like the distribution of Aakash tablets to college students. However, these initiatives should be accelerated to ensure that the benefits of m-learning penetrate across the length and breadth of India and not only the student population. Some of the steps that could be taken by the government to promote widespread adoption of m-learning are:

The government should offer subsidies to mobile service providers for providing special tariff plans for accessing education portals and specific education sites.

Conduct m-learning promotion and awareness campaigns extensively in villages and other remote locations in India.

SWAYAM: The 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM) is an integrated platform for offering online courses and covering school (9th to 12th) to Post Graduate Level. Till now, 2769 MOOCs (Massive Open Online Courses) have been offered on SWAYAM, wherein about 1.02 crore students have enrolled to various courses till date. The online courses are being used not only by the students but also by the teachers and non-student learners, in the form of lifelong learning. It may be accessed on swayam.gov.in NCERT (National Council of Educational Research and Training) has been developing course modules for MOOCs for school education

system in 12 subject areas (Accountancy, business studies, biology, chemistry, economic, history, geography, mathematics, physics, political science, psychology and sociology) for classes IX-XII. Twelve (12) courses were launched in the first cycle. Nearly 22,000 students were registered on various courses. Twenty (20) courses were launched in the second cycle. Nearly 33,000 students were registered.

SWAYAM Prabha: SWAYAM Prabha is an initiative to provide 32 High Quality Educational Channels through DTH (Direct to Home) across the length and breadth of the country on 24X7 basis. It has curriculum-based course content covering diverse disciplines. This is primarily aimed at making quality learning resources accessible to remote areas where internet availability is still a challenge.

National Digital Library (NDL): The National Digital Library of India (NDL) is a project to develop a framework of virtual repository of learning resources with a single-window search facility. There are more than 3 crore digital resources available through the NDL. The contents cover almost all major domains of education and all major levels of learners including life-long learners. More than 50 lakh students have registered themselves in the NDL, with about 20 lakhs active users. The NDL is available through a mobile app too. It may be accessed on ndl.gov.in.

Spoken Tutorial: They are 10-minute long, audio-video tutorial, on open source software, to improve employment potential of students. It is created for self learning, audio dubbed into all 22 languages and with the availability of online version. The languages are C, C++, Java, PHP, Python, PERL, Scilab, Open FOAM, Open Modelica, DWSIM, LibreO and many more. The Spoken Tutorial courses are effectively designed to train a novice user, without the support of a physical teacher.

Free and Open Source Software for Education (FOSSEE): FOSSEE is a project promoting the use of open source software in educational institutions (http://fossee.in). It does through instructional material, such as spoken tutorials, documentation, such as textbook companions, awareness programmes, such as conferences, training workshops, and Internships. Textbook Companion (TBC) is a collection of code for solved examples of standard textbooks. About 2,000 college students and teachers have participated in this activity & close to 1,000 TBCs have been created in Scilab and made them available for free download.

CONCLUSION

UNESCO's report (2012) on mobile learning indicates that the focus of mobile learning initiatives in Asian countries is currently on providing the basic literacy and knowledge acquisition. It identifies that mobile phones are being portrayed as able tools for serving the above purpose. Yet, there are not many projects that have explored the potential of mobile phones for deeper learning or knowledge creation. It suggests that going forward, the Asian region would require a macro-level plan for countries to basic education and knowledge acquisition to learning that focuses on knowledge creation. Stakeholders at various levels will have to explore this aspect of learning through the use of mobile devices. By creating a vision for the future, leveraging the potential of mobile devices, and developing comprehensive policies and implementation plans, Asia can create a more equitable education system for all.

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