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:CONTENTS:

Innovating Education And Educating for innovation: A powerful approach of ICT

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Abstract

With the rapid development of technology and society, each country has emerged more innovative instructional practices in using new Information Communications and Technologies (ICTs). Inculcate quality education is critical for comprehensive development of a nation and is a key facilitator for ensuring inclusive and sustainable development of nation. It is the responsibility of the educational institutions to support innovative learning environment for the student community. ICT has become an integral part of today's teaching learning process. Over the last few years, factors have emerged which have reinforced and emboldened moves to adopt ICTs into classrooms for teaching & learning. In 21st century the ICT in education enhances teaching, learning, research processes. Furthermore ICT creates learning environment, provides motivation and enhance overall scholastic performance. ICT is very much essential to develop a citizen with proficient efficiencies and capable to tackle all the obstacles coming in the path of achievement and success.

Keyword: ICTs, Teaching, Learning, technology, scholastic performance.

Introduction

The rapid developments in technology have made tremendous changes in the way we live, as well as the demands of the society. After reorganization of the impact of new technologies on the workplace and everyday life, today's education institutions try to restructure their education programs and classroom facilities, in order to belittle the teaching and learning technology gap between today and the future. This restructuring process of educational institutes needs effective and efficient integration of technologies into already existing context in order to provide learners with knowledge of specific subject areas, to uplift meaningful teaching-learning and to enhance professional productivity (Tomei, 2005).

Inculcate quality education is critical for comprehensive development of a nation and is a key facilitator for ensuring inclusive and sustainable development of nation. If our nation wants to move towards an enriched heritage of knowledge and be a sustainable first world country, the appropriate development of human capital should be a main concern with proper mind set. The path to develop human capital should be integrated, which includes inclusion of knowledge, skills, intellectuality, literacy in various fields of Science, Technology and entrepreneurship. It also integrates the inculcation of revolutionary approach and high moral and ethical values. For the development of high quality of human capital inculcations of different skills are very much essential with the help of education system.

Quality in Education is expressed in words as "Development of scholarly skills and knowledge that will equip learners to contribute to society through worthwhile and satisfying careers as innovators and decision makers in the world". Innovation in real means that the ability to think out of the box & the boundaries and produce something new which is different from that which already exists. Most of the
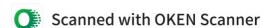
literature defines the term innovation as the implementation not just of new ideas, knowledge and practices but also of improved ideas, knowledge and practices (Kostoff, 2003). Being innovative refers to thinking beyond things which we currently do well, identifying the great ideas of tomorrow and putting them into practice. Innovation in education is a highly contentious issue. It is the responsibility of the educational institutions to support innovative learning environment for the student community. Without innovations in any area there is no possibility for progress. Innovation is based on interest and curiosity, the eagerness to take risks, and experimenting to test assumptions and hypothesis. Innovation is based on questioning and challenging the today's situation. Innovation also based on recognizing opportunity and taking advantage of it.

The swift developments in technology have made enormous changes in the way we live and also the demands of the society. After recognizing the impact of new technologies on the workplace and everyday life, today's education system try to restructure their education programs and classroom facilities, to diminish gap between the teaching and learning technology of today and the future. This process of restructuration requires efficient integration of technologies into existing context in order to promote meaningful learning, to provide learners with knowledge of specific subject areas and to enhance skillful professional productivity (Tomei, 2005). In this scenario, it has been duly recognized that implementation and adoption of information and communication technology (ICT) in a nation at all levels, would certainly contribute and enhance its productivity, efficiency and growth.

ICT has become an integral part of today's teaching learning process. ICT is virus spreading tremendously in all aspects of life. It is an indispensable part of the contemporary world. If one was to compare such fields as

education, engineering, medicine, business, law, banking, and architecture, the impact of ICT across the past two or three decades has been enormous. But when one looks at education, there seems to have been an uncanny lack of impact and very less change than other fields have experienced (Soloway and Prior, 1996).

The integration of ICTs in teaching in general and teacher education in particular is the need of the day. It has the potential to motivate and engage students in learning and enrich, accelerate, and deepen skills (Singh, 2014). There have been a number of factors hampering the wholesale uptake of ICT in all sectors education. These have included such factors as a lack of training among established teachers, a lack of motivation, lack of funding to support the purchase of the technology and need among established teachers to take up ICT as teaching tools (Starr, 2001). But over the last few years, factors have emerged which have reinforced and emboldened moves to adopt ICTs into classrooms for teaching & learning. These factors have included the growing use of the Internet and WWW as tools for information access and communication (Oliver & Towers, 1999), emerging needs to explore efficiencies in terms of the opportunities for flexible presentation and program delivery provided by ICTs (Oliver & Short, 1997) and the capacity of technology to provide support for educational programs to meet the needs of learners (Kennedy & McNaught, 1997). The use of ICTs can make significant changes both for teaching, learning and training mainly in two ways; firstly, the vast distribution and easy process access to information can change relationships between teachers and taught. Secondly; the rich and powerful representation of information changes learner's perception and understanding of the context. ICT can also provide powerful support for educational innovation (Habib, 2017)

Why innovation in education matters

How innovations add value in the case of education? Initially, educational innovations can improve learning outcomes and the quality of education provision. For example, changes in the educational system can help customize the educational process. New trends in personalized learning rely heavily on new ways of use of ICT. Furthermore, education is perceived in most countries as a means of enhancing equity and equality. Innovations could help enhance equity in the access to and use of education, and also equality in learning outcomes. Innovations in education system assure developing competence citizens for the development of nation (OECD,2016).

Perception of ICT

According to Daniels (2002) ICTs have become one of the basic building blocks of modern society within a very short time. Many countries alongside reading, writing and numeracy, now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education. However, there is a misconception that ICTs generally designates to 'computers and computing related activities'. This is providentially not the case, although computers and their application play a significant role in modern information management, other technologies and/or systems also comprise of the phenomenon that is commonly regarded as ICTs. Pelgrum and Law (2003) state that near the end of the 1980s, the term 'computers' was replaced by 'IT' (information technology) signifying a shift of focus from computing technology to the capacity to store and retrieve information. This was followed by the introduction of the term 'ICT' around 1992, when e-mail started to become available to the general public (Pelgrum &Law, 2003). According to a United Nations report (1999) ICTs cover network-based information services, Internet service provision, information technology equipment and services, telecommunications equipment and services media and broadcasting, commercial information providers, libraries and documentation centers, and other related information and communication activities. According to UNESCO (2002) ICT may be regarded as the combination of 'Informatics technology' with other related technology, specifically communication technology. The various sort of ICTs products available and having germaneness to education, such as email, audio conferencing, audio cassettes, television lessons, teleconferencing, radio broadcasts, interactive radio counseling, interactive voice response system, and CD ROMs etc have been used in education for different purposes (Bhattacharya and Sharma, 2007).

Major ICT initiatives in Higher Education

Various initiatives in the over past few years depicted the significant role that ICTs plays in the domain of higher education development. India has taken up major initiatives in terms of content delivery and furthering education through ICT. For example in 2000 in broadcast educational programs for school kids, university students and adults, Gyan Darshan was launched. Correspondingly Gyan Vani was another such initiative step with broadcast programs contributed by institution such as IITs and IGNOU. Under the UGC country wise classroom initiative, education programs are broadcast on Gyan Darshan and Doordarshan national channel every day. E-Gyankosh which aims at preserving digital learning resources is a knowledge repository launched by IGNOU in 2005. Almost 95% of IGNOU's printed material has been digitized by uploaded on the repository. The national programme for technology enhanced learning (NPTEL) launched in 2001 is another joint initiative of IITS and IISC which education through technology. Sristi, the society for research and initiatives for sustainable technologies and institutions is facilitating

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the use of ICT for strengthening the capacity of inventors, innovations and entrepreneurs engaged in conservation biodiversity, natural resources and developing eco-friendly solutions to local problems.

Role of ICT in 21st Century education

1) ICT enhance teaching – learning:

Also from review of related literature about the use of ICTs in education which said that, it is very much essential for the education system to become competent to the advance technology era and that's why education system should get modify according to society by leaving the conventional education trend behind. In modern education system the multimedia and e-book as a component ICTs should get included. As multimedia e-book involves the use of text, audio, video graphics and animations it create enjoyable environment for the student to learn as well as it is also reported that it facilitate the teachers in teaching methodology. As conventional method lacks the resources, modern education with ICTs is become very much essential. It is a very powerful aid in the hand of the teacher & students. ICT is an important component of education which makes teaching and learning process more easy, enjoyable, skill enhancing. ICT promotes the creative thinking of the students & quality like retention memory, understanding and applying knowledge in day to day life as compare to traditional teaching with paper book. It is also reported in various researches and literature that with the capability of ICT in creating a more pragmatic learning environment through its different multimedia elements and allowing a learner to take control. With the ICT student become producer of the knowledge and acquire the analyzing skill. In designing teaching learning materials using ICT productivity tools certain pedagogical principles needs to be considered carefully. The use of ICT should quench the diverse needs of all kinds of learners characterized by all kinds of socio-cultural conditions including the diversity of multiple intelligences. Teachers should continue to learn new ways of using technology for the growth of their learners and the very systems of education. ICT tools help to open up opportunities for teaching -learning by four major key processes in transforming teaching and learning as follows:

Access ideas and information from diverse sources through searching, selecting, locating, and authenticating material in a broad range of multimedia forms;

Extend ideas and information through processing, analyzing, manipulating, & publishing material in different multimedia forms;

Transform ideas and information into new or different forms through synthesizing, modeling, simulating and creating material in many multimedia styles and formats; and

Share ideas and information across local and global networks by interacting electronically with others in actual and/or delayed time.

2) ICT enhance the research opportunities

Recently more and more ICT tools being developed and used in research. ICT had effects on research in the following three ICT application areas: a) Pre-data analysis, b) Data analysis, and c) Post-data analysis. All these three ICT application areas had improved a researcher's productiveness in terms of swiftness, entanglement, quantity, quality as well as cost propotion. Some concerns of using ICT are encompasses: a) High learning curve, b) Revised expectation on researcher, c) Research by the convenient of big data, and d) Decrease of social skills of researcher.

3) ICT enhance learning motivation

The ICT can enhance learner motivation and engagement as a motivating tool for many students. Young people are very captivated with technology. Educators must capitalize on this interest excitement and enthusiasm about the ICT for the purpose enhancing learning. For already enthusiastic learners, the internet provides them with additional learning activities not readily available in the classroom. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner centered environment to content centered. ICTs such as television and multimedia computer software that combine text, sound, graphics and colourful moving images can be used to engage the student in the learning process. Interactive radio also makes use of knowledgeable information, songs, comic skits, dramatizations, sound effects and other performance conventions to compel the students to listen and become more involved in the lessons being delivered.

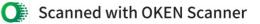#### 4) ICT enhance learning environment

ICT provide an entirely new learning environment for students, thus demanding a different skill set to be successful. Students have increasing volumes of information from a variety of sources to sort through therefore research, critical thinking, brainstorming and evaluation skills are growing in importance. ICT is changing teaching and learning processes by adding elements of vitality to learning environments including virtual environments. It is impossible to imagine future learning environments that are not supported, in one or other way, by ICT. When looking at the current far-reaching diffusion and use of ICT in modern era, especially by the young students, the so-called digital generation then it should be clear that ICT will affect the complete learning process and environment today and in the future.

5) ICT enhance scholastic performance:

ICTs are said to help extend access to educational information, strengthen the relevance of education to the progressively digital workplace, and raise educational quality. Despite that, the experience of inculcating different

ICTs in the classroom and other educational settings all over the developed and developing nation over the past several years suggests that the full realization of the competence educational amenities of ICT. The direct link between use of ICT and students' academic performance and achievement has been the focus of extensive literature during the last two decades. ICT helps students to their learning by improving the communication between them and the instructors (Valasidou and Bousiou, 2005).

Conclusion:

The adoption and use of ICTs in education have a positive impact on teaching, learning, and research. ICT can affect the delivery of education and unable wider access to the education. Furthermore, ICT will increase elasticity so that teacher - learners can access the education regardless of time and beyond the geographical barriers. It can impact the way teacher taught and how learner learns. It would provide the highly favorable environment, motivation for teaching learning process which seems to have a profound impact on the process of learning in education by offering new possibilities for both learners and teachers. These possibilities can have an influence on student performance and achievement. Similarly wider availability of very good 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. The overall it is suggested that successful ICT integration in education.

Recommendation:

This paper set out to identify and evaluate role of ICT in 21st century education and initiatives related to measuring and demonstrating the effective use of ICT for education with regard to teaching learning process. It is a urge of the recent era to use ICT in education to develop the nation.

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