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A comprehensive perspective of Role of ICT in Teaching – Learning Process

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ABSTRACT

Simply understanding the ICT (Information Communication Technology) skills and adopting them is not sufficient. Using ICT for improving the process of teacher and learning is important. It helps in improving the concept as well as application of learning and teaching. ICT is helping make dynamic modifications in our society. They have an influence over each and every aspect of our lives. The application of the ICT tools for the process of learning and teaching has completely changed the way this process is being adopted. It's not restricted to classroom teaching anymore. It's much more than that. There are different components of ICT and it is important to understand how it benefits education system. The web 2.0 technologies are making the process of learning and teaching more interesting as well as interactive. In today's digital age, ICT is helping students by giving those opportunities of learning and applying the 21st century skills.

Keywords: ICT tools, information and communication technology, mobile learning, use of technology in education, teaching with ICT tool

INTRODUCTION:

Education is considered to be one of primary factors in the economic development of a country. It is also crucial for human welfare. With a growth in economic competition, education is becoming more and more important. It is a crucial source of delivering competitive advantage. It has a close relationship with economic growth and it is a source for nations to attract investment and employment opportunities. Also, education seems to be a key determinant of lifelong earnings. Therefore, countries frequently witness raising attainment of education as a solution to handle deprivation and poverty.

In the developing nations, education is mostly linked with a number of indicators of growth and development of humans. Women's education has a great influence on the health of kids and the size of the family. The experiences of the Asian countries in the past few decades has demonstrated a number of benefits that the public investment with education is capable of bringing. In rich nations, education is also considered to be important not only in the initial years, but even later in life. With fast changing technological developments and as the working population of the rich economies grows old, education gives a number of ways of improving and updating the skills and the capabilities of workforce (Mbalamula, 2016).

However, there are a number of constraints on the delivery of education to people who need it at a right time. In the developing nations, there's often a shortage of school teachers who are well qualified. People might be surviving in scattered communities in the rural areas. The money for buying books and other material might not be sufficient. In rich nations, money is a huge constraint. Specifically, the cost for university education is rising sharply. Students are also expected to recover this cost directly or indirectly. However, talking about higher education, time is also an issue. The students having full time job often find it difficult to participate in university courses which are offered at the conventional schedule.

Finally, the employers who are looking forward to train the candidates are conscious about the cost of hiring

people from the primary job for attending the training programmes. Therefore, they are eager to find flexible and proper ways of delivering the information to the employees.
All such factors encourage an interest in using ICT for offering education. Computers started appearing in schools in advanced nations around the beginning of 1980s Broadband came to schools and colleges and became a commonplace from second half of 1990s. In the developing nations, experience is limited. It's not a bad thing necessarily, as it allows these countries to learn from investments of the rich nations (Byrne et al., 2015).

LITERATURE REVIEW:

These days information that is available to us can be accessed immediately and unlimited times. Therefore the transmission happens throughout different segments of a person's life. This includes economy, politics, leisure as well as education. The vast information that is being generated now in the society gives it the designation of a knowledge based society. Some researchers even call it a digital society or information society in order to connect with technology. However, both these concepts give us the idea of an age in which gathering information gives a boost to the social dynamics as well as interactions. Knowledge based society has been defined as a social transformation that happens in the modern day society and gives an insight into the future of different sciences (Zheng, 2015). There is also a difference between the knowledge based society and information society. The latter is a media based digitalised revolution which is being disseminated with the help of ICT. On the contrary, knowledge based society is based on the concept of conveying as well as stimulating the resources with the help of technological tools, giving way faster and much more efficient results. These concepts prove that the origin and the development happen because of technological advances and innovations which are closely related to ICT in the domain of educational training and planning (Mwalongo, 2015).
Now the question is how do we reach to such conceptions, similarities or differences? Researchers state that convergence happens across different technological segments where computing along with telecommunication and electronics have witnessed their relationship as well as support grows with the development between them being nurtured. The factors that are considered to be important for this transition between the society and knowledge include technology, offering opportunities for adaptation and change, along with challenges (Chinyamurindi, 2015).
The convergence of 3 technological segments which cause transformation of the contemporary society are computer science, data processing and telecommunication.
ICT abbreviates to Information and Communication Technologies. It's been defined as a set of certain technological tools as well as resources which are used for communicating, creating, disseminating, storing and managing information. ICT can be looked at with 2 approaches of education. These are:

- ICT for education
- ICT in education (Rumanyika, 2015)

ICT for education refers to development of information communication technology for the purpose of teaching and learning. On the contrary, ICT in education includes adopting basic components of the information and communication technology for practical use of the processes of learning and teaching.
ICT includes the applications and devices of communication such as hardware network, computer, mobile technology, software, video conferencing, satellite communication, RFID technology, pen drive, internet, social media, etc.
Satellite communication: satellite communication was introduced in 1962 with launch of the Early Bird which was the very first satellite for communication. The 2 big international satellites Intersputnik and Intelsat started operation in 1971 and 1965. India launched its satellite for communication by the name of INSAT, and for the purpose of education by the name of EDUSAT in 2004. INSAT- 4CR was introduced on 2nd sept 2007 by GSLV_F04. IT is the replacement satellite for the INSAT- 4C satellite which was ultimately lost and self-destroyed.
Video conferencing: Its 2 way system of communication. It's also known as teleconferencing. It's using technology of sound and video and computers for enabling people located in different places to see, hear or talk to each other. It still consists of the people meeting and discussing in different conference rooms and booths with some specially equipped devices.
WWW or World Wide Web: It's one of the multiple sources of internet which is developed for helping, publishing, organising and providing an access to useful information on internet. It was developed first by Tim Berners Lee in 1989.
RFID technology: Radio frequency identification is wireless use of the electro-magnetic field for transferring data for automatically identifying as well as tracking the tags that are related to objects. The stages comprise of

storing the information electronically. Some of the tags are also empowered by the electromagnetic induction of the magnetic fields which are produced close to the reader. Unlike the brocade, the tags do not have to be within the line of reader. It might be embedded in tracked object **(Jamalahdin, 2017)**.

Information technology is known to have the below characteristics

- Acquisition- manipulation, storage, transmission, management, reception of information or data
- Easy availability and accessibility to updated information and data
- Connecting the geographically disperse locations
- Wide range of media

Globalisation as well as technological modifications have developed a whole new economy which is powered and driven by technology. It is fuelled by information and it's driven by insemination of knowledge. Emergence of the new global economy comes with certain severe implications for nature as well as purpose of the educational institutions. Since the access to data and information is growing rapidly, institutions can't survive with limited knowledge being transmitted in the fixed time. It is important to become compatible with the ever growing knowledge. It is also important for them to be well equipped with technology for dealing with the knowledge.

The primary role of these tools is to communicate as well as collaborate in the global technological world in knowledge society. In terms of education, role of information and communication is most important, especially to support the teachers for integration of ICT in teaching. However, little amount of research is done specifically in Asia Pacific regarding interaction between ICT integration and teachers by the stakeholders of schools. This leads to successful integration of the tools amongst the teachers for teaching **(Marciniak, 2015)**.

ICT helps in making the education system interesting and productive. It gives powerful instructions and it also helps in extending educational opportunities to the masses and develop info rich environment of learning. It has made classroom transactions interesting. It's extended the process of learning and teaching beyond the classrooms. Now the students can easily use their laptops and wireless networks from the convenience of their campus. Laptops allows fast exchange of information for occurring with the individuals within an institution and even across the world. ICT also brings the external world inside the classrooms and makes things look more realistic. Therefore, it helps the students in understanding the abstract thoughts very clearly.

Along with the technological tools, using ICT tools in education is becoming a reality in the society. Thus, the expansion for embracing the teachers, students and the educational institutions results in the optimisation of the process of learning and teaching.

There is no doubt about the fact that an analysis of perspectives in the domain of education shows the significance and growing perspective of technological tools. They advance collaborative and social learning with the dimension efficient to foster liaison between the current society and a system which is adaptable as well as transformative.

Currently, education might not be conceived different from ICT. It can't deny support lent through ICT to education. From this point of view, it's difficult to evoke educational innovation which isn't attached to the technological development (Khalili Zadeh, 2016).

According to a publication, transforming training and education with the help of advance technologies show different contexts wherein the educational institutions forge use of the ICT tools in educational institutions. The feasibility of the technological advances where an assessment of different aspects like materials, physical space, monitoring, evaluation and models of teaching are a few issues which need to be considered and addressed through education.

An integration of the ICT tools in education need to be accompanies with the guidelines which define the framework for process of making decisions regarding actions which need to be implemented during the entire process (Ghavifekr, 2015).

It relates to 3 main dimensions including:

1. Information relating to access to nurturing and transformation of knowledge as well as information on digital environments
2. Communication, related to collaboration, technological adaptability and teamwork
3. Social impact and ethics related to the competencies required to handle the ethical challenges regarding globalisation as well as rise of the ICT tools

There are also a number of challenges which are faced by instructors and teachers in using the ICT tools. They have devised ways of overcoming these challenges.

The major components of challenges are insufficient ICT tools for schools, failure for committing to rules and regulations of schools and failure to follow the rules and regulations of schools. In order to overcome these challenges 3 components have been identified which are sharing of ideas, assisted performance as well as

distribution of leadership styles.

There are a number of empirical evidences to prove that the teachers and the students are quite satisfied with ICT tools. However, only a couple of cross-section researches have been done in this regard (Ronald, 2017).

Students and teachers both enjoy using technology for learning and teaching. They evaluate the effectiveness of the available technologies on a similar basis. Students and teachers commonly use internet, Google, projector, PowerPoint, laptops, etc. Especially projectors are used by teachers as well as students the most. According to another study, it has been confirmed that projector is one of the most used tool for formal education.

Some of the most useful and helpful technologies for teachers are laptop, PowerPoint and Google. This also correlates to the findings of students. Studies also show that the technological applications such as Google, blogs, FB and website were also implemented in day to day teaching. In terms of using technology for education, students and teachers choose the right and best ICT tools for achieving their educational goals.

Other important studies concern with the choice between technological tools and social media platforms. They are used by teachers and the students likewise. It has also been seen that social media platforms are the most preferred means in the context of facilitating the process of learning. Most of the teachers agree to the fact that teaching becomes very easy and fast with the help of technology. They also state that the academic performance of students enhances with the help of technology. Results show that instructors of the international institutions are the advanced users of ICT as compared to the bilingual teachers. Most of them are average technology users. The teachers also mention that they employ technological tools for easily getting fast access to the resources of teaching, motivating the students, making the process of learning easy, etc. It helps the students in visualising the subjects, giving detailed instructions and making students learn in a better way. Most of the teachers use technology for planning their lessons and monitoring their activities.

The competence of teachers in use of technology contribute in improving students learning. The students are taught about ways of developing technological skills for getting the benefit of efficient use of the technological resources. The teachers and students have a positive attitude towards technological advancements for promotion of teaching and learning.

Most of the teachers don't regularly get vocational training. However, they sometimes get professional training. On the contrary. Lack of professional training on a regular basis does not hamper integration of technology by teachers. Some of the studies even show that professional training often becomes a challenge to teaching efficiently. Even though the previous studies suggest that professional and vocational training helps in contributing towards efficient teaching. These study also support the fact that insufficient professional training isn't a barrier in the integration of technology in teaching. More studies should be carried out in order to confirm if the socio-geographic context has any role to play in the fact (Granados, 2015).

CONCLUSION:

It is a fact that ICT is a potential tool for managing education as well as for teaching. Use of ICT should be encouraged in educational institutions. It should be used by the instructors for gaining an access to the educational material. By teaching the skills related to computers to the younger generation, it might help in influencing inwards investment.

However, getting best out of ICT depends on a number of variables includes appropriate design of hardware and software, training as well as attitude of the instructors and realisation of the fact that all students have different set of requirements. It even requires willingness to try and experiment things. Efficient use of the ICT tools for education is likely to demand different types of pedagogical techniques from the traditional teaching methods. These might take a very long time to be devised and disseminated. Also, the latest emphasis on cost efficiency might discourage innovation. Well-designed tools of ICT may help the educators in reaching the new segments of prospective students especially the mature ones, students who are physically disabled and lifelong learners. Most of the segments comprise of older and motivated students.

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