

Influence of E-Technologies on School Education and Its Impact on User Satisfaction

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Abstract

The world has witnessed the increasing and humungous power of e-technologies in almost every aspect of human life. Be it banking, education, finance, entertainment or healthcare, there are virtually no fields which has not been influenced by the e-technologies. In today's world of digitalisation, organizations have realized the power of e-technologies and are being driven to use e-technologies to match the global paradigms. The education industry unanimously agrees to the fact that it is undergoing a positive transformation due to the application of e-technologies. Application of e-technologies involves the usage of ICT (Information and Communication Technologies) with the help of Internet or Intranet. ETechnologies in education can take the form of e-learning, usage of ICT equipments with Internet in classrooms, usage of Interactive whiteboards, mobile devices and so on. This paper deals with the role of e-technologies in the field of education in India. It also discusses about the scenario of application of e-technologies and ICT in schools of the rural areas of Kanchipuram District, TamilNadu.

Keywords: E-Technology, ICT, Education, Internet, E-Learning

1.Introduction

UNESCO defines ICT as amalgamation of information technology with the communication technology. The role of ICT in education is inevitable. UNESCO aspires that all countries, both developed and developing, have access to state of the art educational and technical facilities. This guarantees that the learners of the society are updated to the current trends and will prove to be the assets of the country. To achieve this milestone, UNESCO emphasizes the need of ICT to be integrated as a part of school curriculum.

Chinmoy Goswami(2014) says that Education technology means the application of all kinds of modern media and tools for expanding the horizons of learning. It is one of the potential means of imparting education effectively and efficiently. Educational technology is the study and principled practice of enabling e-learning to improve the performance of the users by designing, implementing and administering suitable technical processes and resources.

Ghavifekr, S. & Rosdy, W.A.W. (2015) have defined ICT integration in education combines the usage of computer-based communication into daily classroom instructional process. They feel that teachers have a vital role in preparing the children to face the modern digitalized world. They have to provide them with man-making education so that they can face the challenges they encounter in the outside world.

Amirhossein Alibaygia, Mehdi Karamidehkordi, Esmail Karamidehkordi(2010) assert that ICT plays an important role in the development of the rural areas. The rural areas must use ICT to contribute for the overall development of the nation. ICT can enhance the productivity and efficiency of the nation by alleviating poverty, improvisation of educational facilities, better health care facilities and thereby improving the GDP.

According to the revised National policy on ICT in school education, the National Policy on Education (1986, modified in 1992) emphasizes the need to utilize educational technology to enhance the quality of education. The National Curriculum Framework of 2005 also states that ICT can play significant role in school education.

Some of the objectives of the National policy in ICT is

- a) to promote usage of ICT to enrich the knowledge of the children
- b) to make world class ICT resources accessible to all students
- c) to train the teachers to make them ICT competent and enable them to integrate ICT in their day to day activities. This objective will be given a lot of weightage because teachers act as catalysts for change. They are the ones who spend valuable time with the students. Their role in ICT integration in teaching and learning is the pivotal point. They will be motivated to integrate ICT by conferring them with National ICT awards.
- d) To develop e-content which can be easily accessed by everyone

The Government of India has launched the “Digital India” programme in an aim to make India a digitally empowered, skilled and knowledgeable economy. It visions to provide

broadband facilities to the remotest village so that they can reap the benefits of e-technologies.

2.Objectives

- 1.To understand the role of ICT in education
- 2.To develop a conceptual model about ICT usage and user satisfaction
- 3.To know about the ICT integration scenarios in government schools located in Pozhichalur, CowlBazaar, Kovilambakkam and Nanmangalam

3.Literature Review

Meenakshi(2013) states that the application of e-technologies and ICT in schools improves the quality and effectiveness of the teaching and learning process. It can prove to be an effective method of pedagogy, once the teacher starts realizing the endless potential of ICT, tools and resources. ICT integration in teaching has the power to increase the knowledge, decision making capability and creativity of the students. The teachers feel that the assortment of ICT along with the traditional methodology works in stride of the students.

S Nurjanah, H B Santoso and Z A Hasibuan(2017) say that embracing ICT in education is a common term that refers to the implementation of ICT in instructing, acquiring knowledge and organizational activities aimed to reinforce the accomplishment of educational goals and approaches. Many researchers agree that ICT can be an effective tool in supporting teaching and learning. The education policy makers in various countries believe that the necessary conditions for effectively introducing e-technologies and ICT into schools are mainly the availability and accessibility of ICT resources. The resources are including: computer hardware, software, communications infrastructure like projectors, interactive/non-interactive whiteboards, digital content, technical as well as Financial support for ICT operation, troubleshooting and maintenance. They feel that the developing countries need to strike a balance between the education policy and economic status of the country for sustainable development.

Jo Shan Fu(2013) expresses that E-Technologies and ICT can include computers, laptops, speakers, interactive or non-interactive white boards, projectors etc. Many studies have shown that an appropriate use of ICT can raise the standards of education and helps the students to apply learning to their daily chores. The learning and teaching should not be

restricted to the traditional textbooks. E-Technologies expands the boundaries of education. Students can access the textbooks online through internet. They have access to abundant information in the form of video clips and PowerPoint presentations. This makes learning accessible anywhere, anytime. Therefore, the teaching environment is undergoing a metamorphosis due to the application of e-technologies and ICT.

According to Buabeng, C.(2012), the implementation of ICT in schools is necessary to enhance the aptitude, capacity, competencies and knowledge of the students and prepare them to face the challenges imposed by the society.

Ghavifekr, S. & Rosdy, W.A.W. (2015) state that ICT can be useful to both teachers and students in many ways to expand their knowledge of the subject areas. The students and teachers are not restricted to the stereotype methodologies of “chalk and talk”. They can expand their horizons to unlimited, endless world of Internet and World wide web (WWW), which is a database of plethora of information. The students get to learn concepts by doing activities on the desktops which in turn enhances the understanding and kindles the imaginative capability of the students. This paper also analyses the effectiveness of ICT integration in teaching and learning in the schools of Malaysia.

Hany Mohamed, Adamu Abubakar, Akram Zeki(2018) has performed research focussing on developing countries to examine strategic connection between the success of effective utilization of ICT Resources and ICT competencies. They have used the DeLone and McLean’s Information Systems Success model as the theory for this research. According to DeLone and McLean model, both system quality and information quality influences the use and user’s satisfaction, which in turn has a profound impact on individual users and the organization.

4.Proposed Model

Dorobat(2014) says that in 2006, Holsapple and Lee-Post presented a version of the D&M2003 model, adapted so as to measure the success of an eLearning system. This study also proposes a model which relates ICT integration and its impact on user satisfaction. It is based on the Holsapple and Lee-Post 2006 model. It shows that if the ICT system is easy to use, user friendly, has up to date information, reliable, always available, then it leads to the use of the system and user satisfaction of the user.

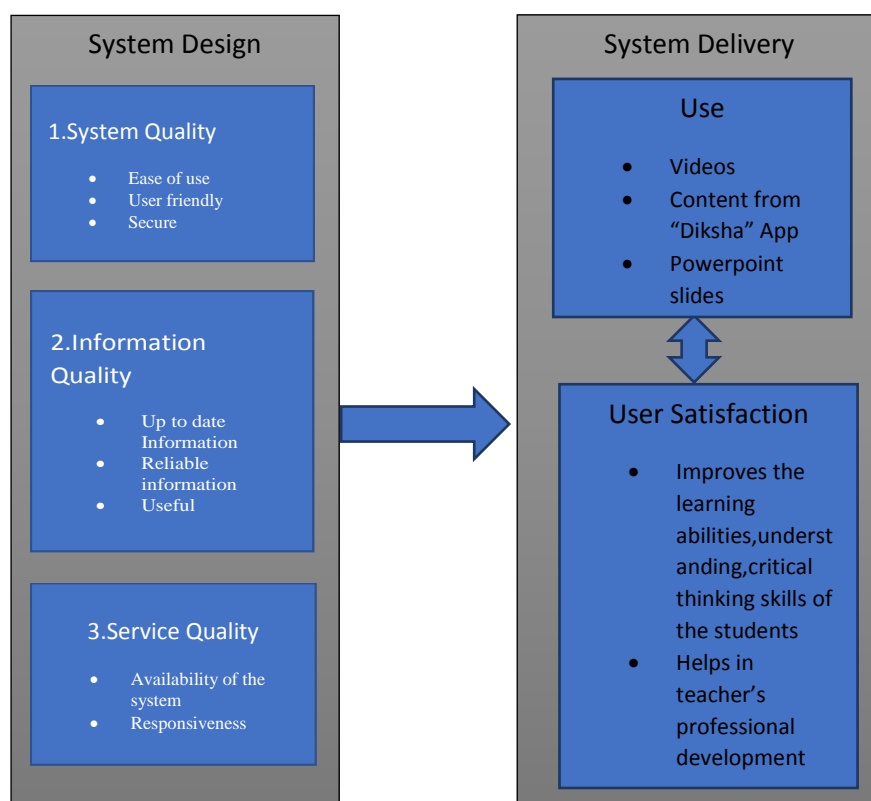


Fig 1:-Model based on Holsapple and Lee-Post 2006 model.

5. Initiatives by different countries regarding ICT

- Arifur Rahman Khan et al(2013) point out that the Government of Bangladesh have launched Vision-2021.They had come up with the National ICT Policy-2009 and National Education Policy-2010 to give stimulus to the country's programme to become Digital Bangladesh by 2021 and thereby advancing itself to be on par with the developed countries.
- Nicholus Mwunda (2014) states Governments of the developed countries all over the world over have invested immensely on the establishment of ICTs in public schools. The United Kingdom's budget for ICT in the 2008-09 financial year was around 2.5 billion pounds. The USA used \$ 6 billion in the same period for the provision of ICTs in education. Kenya has spent around \$ 600 million for ICT integration in schools. Kenya also has plans for providing one laptop per child and also is showing keen interest to equip its teachers with ICT skills.
- Ghavifekr, S. & Rosdy, W.A.W. (2015) convey that The Ministry of Education launched a widespread review of the education system in Malaysia in October 2011. In order to elevate the educational benchmarks, government developed an outline

named “Education Blueprint 2013-2025”. This proposal provides the plan for the justifiable educational transformation of the Malaysia education system until 2025.

- The MHRD website says that, India also stands on par with the developing countries in terms of ICT integration in schools. ICT in schools was incorporated as a part of Rashtriya Madhyamik Shiksha Abhiyan (RMSA). ICT was launched as a part of schools in 2004 and then it was revised in 2010. This was done to promote learning through computer aided process among the secondary stage students. This scheme will also help bridge the socio-economic gap between the students of urban and rural areas. MHRD has developed “DIKSHA” app for the benefit of teachers. The app is partnered by various prestigious institutions like Azim Premji Foundation, British Council, ThinkTac etc. It delivers high quality content which would aid the teachers in the process of teaching, learning and professional development.

6. Research Design

The research design employed in this study is based on the descriptive case studies of different schools in the rural areas of Kanchipuram district. The study deals with the visit to the schools, understanding of the current ICT infrastructure by interacting with the head of the schools, interaction with teachers to know their perceptions and the needs of the schools for further improvement in integration of ICT and e-technologies with education. The sample villages selected for the study is based on convenient sampling.

6.1. Background of the Study

This paper researches about the schools in the rural areas of Kanchipuram district. Pilot study was conducted in the villages of Pozhichalur, Cowl Bazaar, Nanmangalam and Kovilambakkam.

a) Pozhichalur and Cowl bazaar

Pozhichalur is located close to the Chennai Airport at Tirusulam on its south west side. It lies on the south banks of the Adyar River. Cowl Bazaar is a village with basic amenities near Pozhichalur. The major occupation of this area was agriculture. But due to the depletion of agricultural land and movement of people from rural to urban areas, people have moved to other occupations. There is also presence of women self-help groups which opens doors for women entrepreneurs.

In these areas, the pilot study was performed on the government middle school at Pozhichalur and the government primary school at Cowl Bazaar. The middle school at Pozhichalur has classes from 1 to 8. The school has 379 students, out of which 113 are girls and 266 are boys. The computer room has 3 computers and a projector. The school does not have internet facilities to utilize the maximum potential of ICT integrated learning and teaching. They use ICT to some extent by projecting the lessons on DIKSHA app on the mobiles using their personalized net packages. They also use USBs with the required contents in offline mode and project it to the class. The computer sharing ratio is around 1:10. The ideal ratio is around 1:2 or 1:3. The barriers for successful integration of ICT with teaching and learning with regards to the Pozhichalur school is inadequate infrastructure. The interaction with the teachers and head of schools was very helpful for the study. They agree to the fact that ICT integration is very essential to elevate the knowledge and skills of the students.

The primary school at Cowl Bazaar has classes from 1 to 5. It has around 150 students. The school does not have computers and Internet facilities to utilize ICT. The interaction with the teachers helped to understand the mind blocks they are facing regarding ICT. They felt that integrating ICT might hamper their time schedule. They were not very convinced about ICT integration.

The school management of both the schools are in touch with the concerned departments for provision of adequate ICT infrastructure.

b)Nanmangalam

Nanmangalam is situated in the St. Thomas Development block. It is predominantly a residential area. It is located nearby Kovilambakkam. Nanmangalam forest reserve area, ranging around 2400 hectares is a part of Nanmangalam. There are two government schools at Nanmangalam.

One of the schools caters to the students from 1st to 5th standard. The strength of the primary school is 563 students, 260 boys and 263 girls. They do not have ICT infrastructure in place. They have a single laptop for managing administrative functions. The Principal of the school stated that they are 15 sections in the school and they would like to have one computer in each class for maximum utilization of ICT. The appreciable fact about the school is the gender equality ratio.

The High school, which has classes from 6th to 12th standard, has a well-equipped computer lab with 19 computers. The High school had introduced the ICT integration in the month of June 2018. The computer sharing ratio is around 1:2, which is the best among the schools surveyed for the study. The interaction with the high school teachers revealed the fact that they are quite happy with the ICT integration teaching and learning process. They feel that the students are able to understand concepts in a better way.

c)Kovilambakkam

Kovilambakkam is a village which is located within Kancheepuram district, Tamil Nadu, India. It is administered by the Kovilambakkam Village Panchayat, which is under jurisdiction of the St. Thomas Mount Panchayat Union and Tambaram Taluk.

There are two government schools, one for 1 to 5 and the another for 6 to 12. The primary school has 601 students, 289 boys and 312 girls. The school has 5 unused computers in the lab room. They are facing technical issues which is preventing them from using the computers. They also do not have internet facilities for extracting the maximum output from ICT integration.

The high school has around 1500 students from 6th to 12th standard. They have around 8 computers in the lab room. The computer sharing ratio is around 1:6. They are managing with the infrastructure provided by the government and NGOs.

7.Discussion

The discussion with the head of schools, staff and children gave an idea that ICT has reached nook and corner in India. The Government of India and the state governments are taking efforts for successful implementation of ICT infrastructure and for providing training to the teachers. 3 out of 4 schools taken for case study have positive attitude towards ICT integration in teaching and learning. The interaction with the teachers at Nanmangalam High school showed that they were satisfied with the integration of e-technologies and ICT in schools and were glad to see the improvement in student's understanding of concepts. Ghavifekr, S. & Rosdy, W.A.W. (2015) have proved the effectiveness of ICT by the study which was conducted in the schools of Malaysia. The results of the study indicate that ICT integration is very useful for both teachers and the students. They assert that the teachers must use the ICT tools in their core activities like lesson plan, preparation of worksheets and activities for the students. For the teachers to impart the curriculum utilizing ICT, they must undergo training

programs which will enhance the quality of the students and the teachers. Mua Rodanny Kennah(2016) has used case study method to analyse the use of ICT in the Teaching and Learning Process in Secondary Schools of Cameroon. The results from the analysis show that those teachers who believed that they were capable enough to use ICT felt that there was a vast difference in the way they prepared their lesson plans, worksheets and miscellaneous activities. They were able to deliver their lessons in a better way. These teachers were able to recognize the potential of ICT in the teaching and learning process. They felt they could understand the unlimiting capacities of ICT because they made constructive use of the in-service training organised by the school.

8. Conclusion

The research study reveals the fact that if the conditions are facilitating for the teachers and students, they are willing to reap benefits due to ICT integration. The teachers have been trained under government training programs. Buabeng, C(2012) expresses the fact that there are many factors which influence the satisfaction and teacher's usage of ICT. It can be the teachers' attitudes, knowledge, competencies, support from the management and government. He says that the teachers' attitude towards accepting new technology is vital. If they have positive attitude towards ICT, they can apply it and explore its maximum potential.

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